

حمل الآن

مجاناً وحصرياً

امتحانات رقم (1)

الترم الاول



Final assessment from the school book



First Group of Questions

► Choose the correct answer from the given ones :

1 If $\frac{9}{k+1} = \frac{3}{5}$, what is the value of k ?

- (a) 13 (b) 14 (c) 15 (d) 16

2 What is the solution set of the equation : $4(2x + 7) = 12$ in $\mathbb{N}$?

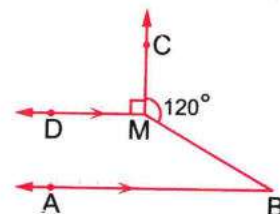
- (a) $\{2\}$ (b) $\{-2\}$ (c) $\{-4\}$ (d) $\emptyset$

3 In the figure below :

$$\overrightarrow{MC} \perp \overrightarrow{MD}, \overrightarrow{BA} \parallel \overrightarrow{MD}$$

$$\text{and } m(\angle BMC) = 120^\circ$$

What is the measure of $\angle B$?



- (a) 20° (b) 30° (c) 50° (d) 70°

4 If a map scale is 1 : 200,000 and the distance between two points on the map is 3.5 cm , what is the real distance between these two points in kilometers ?

- (a) 3.5 (b) 7 (c) 8.5 (d) 700

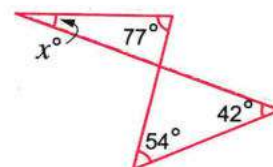
5 $-3 - (-2) = \dots\dots\dots$

- (a) -5 (b) -1 (c) 1 (d) 5

6 In the opposite figure :

What is the value of x ?

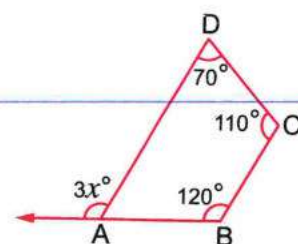
- (a) 19° (b) 32°
(c) 48° (d) 60°



7 In the opposite figure :

ABCD is a quadrilateral , what is the value of x ?

- (a) 40° (b) 50°
(c) 60° (d) 70°



Second Group of Questions

► Choose the correct answer from the given ones :

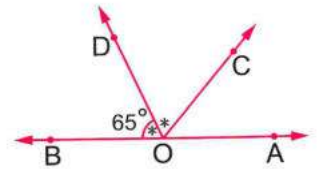
1 Which of the equations below is not equivalent to $4x + 5 = 9$?

- (a) $3x = 3$ (b) $4x + 1 = 5$ (c) $x - 1 = 5$ (d) $x + 1 = 2$

2 In the opposite figure :

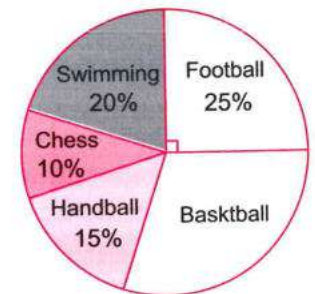
What is the measure of $\angle DOA$?

- (a) 50° (b) 80°
(c) 115° (d) 130°



3 The opposite pie chart illustrates the distribution of students' preferences for summer activities. If there are 200 students participating in all activities , how many students chose basketball ?

- (a) 30 (b) 50
(c) 60 (d) 70



4 How many axes of symmetry are there in a regular hexagon ?

- (a) 2 (b) 3 (c) 4 (d) 6

5 If point $(4, 3)$ is the midpoint of $\overline{AB}$, where A $(x, 5)$ and B $(2, y)$, what is the value of $(x + y)$?

- (a) 3 (b) 5 (c) 7 (d) 9

6 Which of the following is equal to $8y$?

- (a) $5 + 3y$ (b) $3 + 5y$ (c) $8 + y$ (d) $3y + 5y$

7 If the price of a product is reduced from 2,000 LE to 1,700 LE , what is the discount rate ?

- (a) 10 % (b) 15 % (c) 25 % (d) 27 %

Third Group of Questions

► Answer the following Questions :

1 Simplify the expression : $3(a - 2b) - 2(a + b)$

Then find the value of the expression when $a = 5$ and $b = -1$

- 2 Three persons participated in a project with a capital of 750,000 LE.

It was divided in the ratio 4 : 5 : 3 Calculate the share of each person in the capital.

- 3 If the masses of a group of students in kilogram are listed on following table :

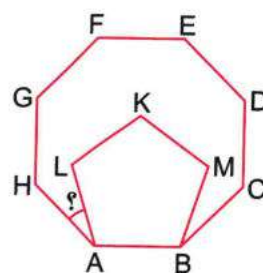
Weight (Kgs)	72	73	75	76	77	78
Frequency	1	3	5	3	6	2

Calculate the arithmetic mean of the masses of these students.

- 4 In the opposite figure :

ABCDEFGH is a regular octagon ,
and $\angle ABMKL$ is a regular pentagon.

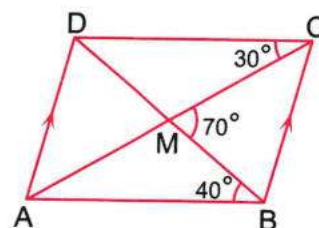
Find with proof : $m(\angle HAL)$



- 5 In the opposite figure :

$$\overline{AC} \cap \overline{BD} = \{M\}$$

Prove that : ABCD is a parallelogram.



Some School Examinations



1

Maadi Math Department

Cairo Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

1 If $\frac{x}{15} = \frac{2}{5}$, then $x = \dots\dots\dots$

- (a) 6 (b) 5 (c) 3 (d) 2

2 If the origin point is the midpoint of $\overline{AB}$, and A (5, -2), then B is $\dots\dots\dots$

- (a) (2, 5) (b) (5, -2) (c) (-2, -5) (d) (-5, 2)

3 The quadrilateral has $\dots\dots\dots$ diagonals.

- (a) 1 (b) 2 (c) 3 (d) 4

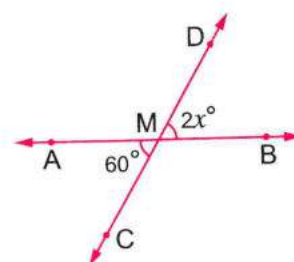
4 In the opposite figure :

$$\text{If } \overrightarrow{AB} \cap \overrightarrow{CD} = \{M\}$$

$$\text{and } m(\angle AMC) = 60^\circ$$

, then $x = \dots\dots\dots$

- (a) 30 (b) 40
(c) 35 (d) 60



5 An airplane model is made with a scale 1 : 1000, if the length of the model is 7.5 cm., then the real length of the airplane is $\dots\dots\dots$ m.

- (a) 7500 (b) 57 (c) 750 (d) 75

6 In the opposite stem-and-leaf plot :

The median = $\dots\dots\dots$

- (a) 40 (b) 47
(c) 53 (d) 55

Stems	Leaves
3	1 4 6
4	0 7
5	3 5 6
6	2

Key 4 | 7 means 47

7 The mean of the values 5, 7, 1, 4 and 3 is $\dots\dots\dots$

- (a) 1 (b) 3 (c) 4 (d) 5

8 If the measure of an angle is 100° , then the measure of its supplementary angle is $\dots\dots\dots$

- (a) 80° (b) 90° (c) 100° (d) 260°

9 In the opposite box plot :

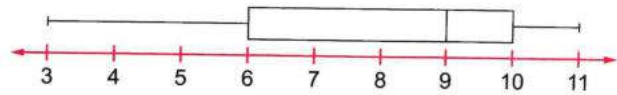
The value that represents the first quartile is

(a) 3

(b) 6

(c) 9

(d) 10



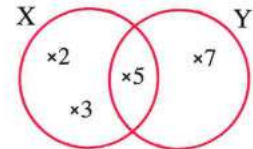
Second Group :

► Answer the following questions :

1 By using the opposite Venn diagram :

Find : [a] $X \cap Y$

[b] $X \cup Y$



2 Add : $2x + 3y - 5$ and $x - y + 8$

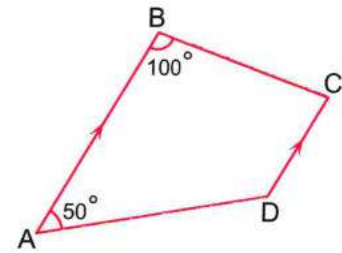
3 A man wants to divide 5,000 LE between his two sons with the ratio 2 : 3
Calculate the share of each son.

4 In the opposite figure :

ABCD is a quadrilateral , $\overline{AB} \parallel \overline{CD}$

, $m(\angle B) = 100^\circ$ and $m(\angle A) = 50^\circ$

Calculate : $m(\angle C)$ and $m(\angle D)$

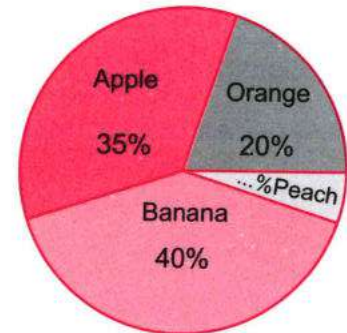


5 The opposite pie chart represents
the favorite fruits for 150 students.

[a] How many students prefer banana ?

[b] What is the percentage of students who prefer peach ?

[c] Calculate the measure of the central angle of the apple sector.

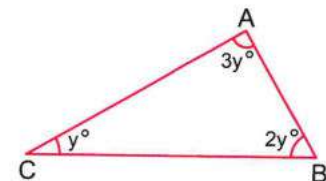


6 In the opposite figure :

ABC is a triangle , $m(\angle A) = 3y^\circ$, $m(\angle B) = 2y^\circ$

and $m(\angle C) = y^\circ$

Find the value of y

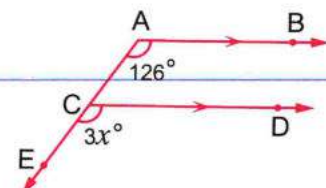


7 In the opposite figure :

$\overline{AB} \parallel \overline{CD}$ and $m(\angle BAC) = 126^\circ$

[a] **Calculate :** $m(\text{reflex } \angle A)$

[b] Find the value of x





Answer the following questions :

First Group :

► **Choose the correct answer :**

- 1 If the scale drawing < 1 , then that represents
 (a) reduction. (b) magnification. (c) equality. (d) otherwise.
- 2 The measure of the interior angle of the regular hexagon is
 (a) 90° (b) 108° (c) 120° (d) 135°
- 3 What is the type of the angle that complements the right angle ?
 (a) Acute angle. (b) Obtuse angle.
 (c) Zero angle. (d) Straight angle.
- 4 The additive inverse of $\frac{2}{3}$ is
 (a) $\frac{3}{2}$ (b) $-\frac{3}{2}$ (c) $-\frac{2}{3}$ (d) $\frac{2}{3}$
- 5 The median of the values : 7 , 5 , 9 , 4 , 3 is
 (a) 7 (b) 3 (c) 9 (d) 5
- 6 If the point (3 , k - 2) lies on the X-axis , then k =
 (a) - 2 (b) 2 (c) zero (d) 3
- 7 The value of the expression (5 X - 8) at $X = - 1$ is
 (a) - 13 (b) - 3 (c) 3 (d) 13
- 8 **In the opposite stem-and-leaf plot :**
 The mode is
 (a) 2 (b) 5
 (c) 22 (d) 35
- 9 The measure of the central angle for the circular sector that represents $\frac{1}{3}$ the area of the circle is
 (a) 30° (b) 60° (c) 90° (d) 120°

Stems	Leaves
1	0 1
2	0 2 2 3 9
3	4 5 5 5 7 8
Key	3 5 means 35

Second Group :

► **Answer the following :**

- 1 If a man distributed 3,600 LE between two persons with the ratio 3 : 2 , what is the share of each one ?

2 Find the solution set of the equation : $5x + 14 = 4 + 3x$ in $\mathbb{Q}$

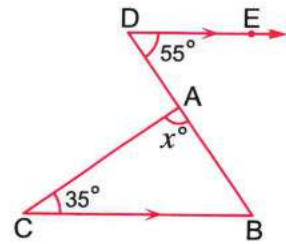
3 In the opposite figure :

If $\overrightarrow{DE} \parallel \overrightarrow{CB}$

, $m(\angle D) = 55^\circ$

, $m(\angle C) = 35^\circ$

Find with proof : the value of x

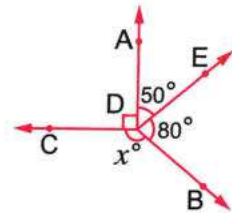


4 In the opposite figure :

$m(\angle ADC) = 90^\circ$, $m(\angle ADE) = 50^\circ$

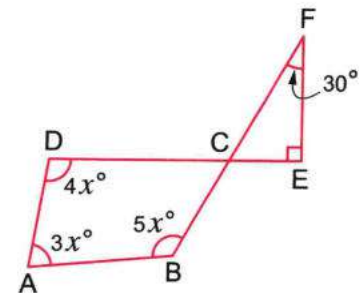
, $m(\angle BDE) = 80^\circ$

Find with proof : the value of x



5 In the opposite figure :

Find the value of x



6 If $A = \{2, 3, 5, 7\}$, $B = \{2, 7\}$, find :

[a] $A \cup B$

[b] $A \cap B$

7 The following table represents the masses (in kilograms) of students in one of the classes :

Mass	71	72	73	74	75	76	77
Frequency	1	2	3	4	5	3	2

Find the arithmetic mean of the masses of the students.

3

El-Basateen Directorate
Maths Supervision

Cairo Governorate



Answer the following questions : (Calculator in allowed)

First Group :

► Choose the correct answer :

1 $5 - (-3) = \dots\dots\dots$

(a) 8

(b) - 8

(c) 2

(d) - 2

2 If $\frac{6}{x} = \frac{2}{4}$, then $x = \dots\dots\dots$

- (a) 12 (b) 3 (c) 6 (d) 9

3 The S.S. of the equation : $4x + 5 = 3 + 2x$ in $\mathbb{Q}$ is $\dots\dots\dots$

- (a) $\{3\}$ (b) $\{1\}$ (c) $\{-1\}$ (d) $\{-3\}$

4 The angle of measure 80° supplements an angle of measure $\dots\dots\dots$

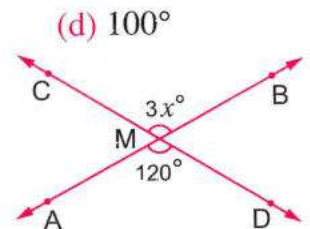
- (a) 60° (b) 150° (c) 120°

5 In the opposite figure :

$\overrightarrow{AB} \cap \overrightarrow{CD} = \{M\}$

, then the value of $x = \dots\dots\dots$

- (a) 40 (b) 150 (c) 120



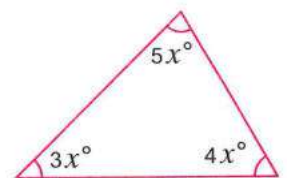
(d) 100°

(d) 100

6 In the opposite figure :

The value of $x = \dots\dots\dots$

- (a) 60 (b) 15
(c) 120 (d) 20



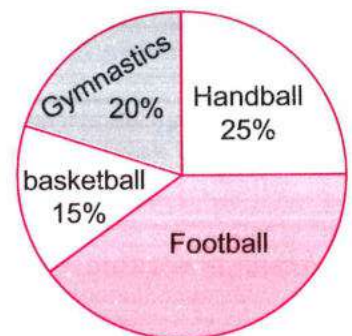
7 By using the opposite stem-and-leaf plot, what is the median ?

- (a) 12 (b) 13
(c) 14 (d) 15

Stems	Leaves
0	7 8 9
1	0 2 2 2 3 4 5
2	0 1 1 5 7
Key	1 2 means 12

8 The opposite figure shows 500 athlete students in the school, then the number of students who play football equals $\dots\dots\dots$

- (a) 40 (b) 150
(c) 80 (d) 200



9 The mean of the values : $7 - x$, $9 + 2x$, $5 - x$ equals $\dots\dots\dots$

- (a) 9 (b) 7 (c) 6 (d) 4

Second Group :

► Answer the following :

1 Three persons shared a business, the first paid 300,000 LE, the second paid 400,000 LE, the third paid 100,000 LE and if the profits were 160,000 LE. Find the profit share of each of them.

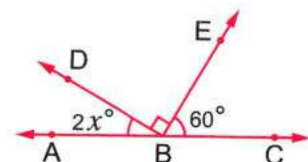
- 2 A map is drawn with a scale drawing as shown.

If the distance between two cities on the map is 7 cm,
what is the real distance between the two cities ?



- 3 Find the sum of the following : $2x - y + 4$, $5x + 4y - 6$

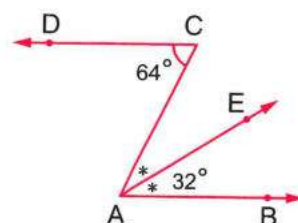
- 4 Find the value of x in the opposite figure :



- 5 In the opposite figure :

$\overrightarrow{AE}$ bisects $\angle CAB$

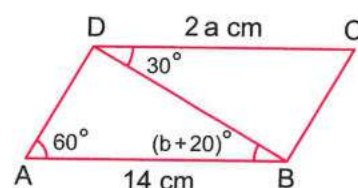
Prove that : $\overrightarrow{AB} \parallel \overrightarrow{CD}$



- 6 In the opposite figure :

ABCD is a parallelogram.

Find : a , b , $m(\angle BCD)$



- 7 Find the arithmetic mean of the following frequency distribution :

Mass	28	29	32	33	35
No. of students	2	3	6	4	5

4

6th of October Directorate
Math Inspection

Giza Governorate



Answer the following questions :

First Group :

- Choose the correct answer :

- 1 The solution set of the equation $4x = -12$ in $\mathbb{N}$ is

(a) $\{-3\}$ (b) $\{3\}$ (c) $\emptyset$ (d) $\{0\}$

- 2 The projection of the point $(-3, 5)$ on the x -axis is

(a) $(5, -3)$ (b) $(0, 5)$ (c) $(-3, 0)$ (d) $(3, -5)$

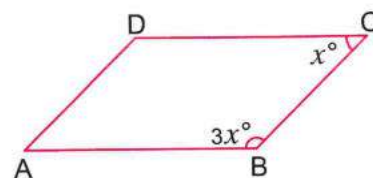
- 3 If $\{x + 1, 5\} = \{7, 5\}$, then $x =$

(a) 4 (b) 5 (c) 6 (d) 7

4 In the opposite figure :

If ABCD is a parallelogram
 , then $m(\angle A) = \dots\dots\dots$

- (a) 30° (b) 45° (c) 60°



- (d) 135°

5 If $a = |-5|$, $b = -7$, then $a \times b = \dots\dots\dots$

- (a) 35 (b) -35 (c) -7 (d) 5

6 If $m(\angle A) = 46^\circ$, then $m(\text{reflex } \angle A) = \dots\dots\dots$

- (a) 44° (b) 134° (c) 314° (d) 360°

7 If the ratio 7 : 13 is the same ratio as $X : 52$, then $X = \dots\dots\dots$

- (a) 14 (b) 21 (c) 28 (d) 35

8 If $\frac{X+4}{6} = \frac{7}{14}$, then $X = \dots\dots\dots$

- (a) -7 (b) 7 (c) -1 (d) 1

9 The measure of each interior angle of the regular hexagon equals $\dots\dots\dots$

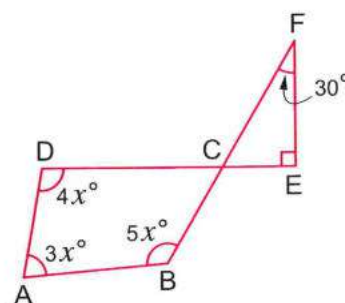
- (a) 60° (b) 108° (c) 120° (d) 135°

Second Group :

► Answer the following questions :

1 In the opposite figure :

Find the value of X

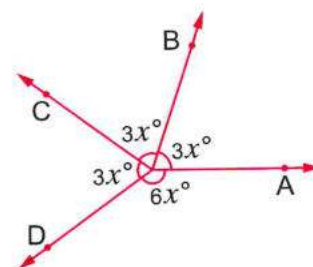


2 If $X = \{1, 3, 7, 5\}$, $Y = \{9, 4, 6, 2\}$, find :

- [a] $X \cap Y$ [b] $Y \cup X$

3 In the opposite figure :

Find the value of X



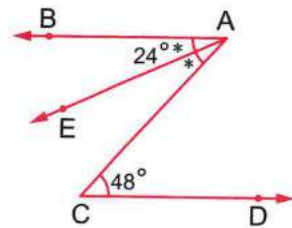
4 A picture of a building is taken with a scale drawing 1 : 100 , if the height of the building in the picture is 3 cm. , what is its real height ?

5 In the opposite figure :

$\overrightarrow{AE}$ bisects $\angle BAC$, $m(\angle BAE) = 24^\circ$

, $m(\angle ACD) = 48^\circ$

Prove that : $\overrightarrow{AB} \parallel \overrightarrow{CD}$



6 Find the S.S. of each of the following equations in $\mathbb{N}$:

[a] $-2(x + 1) = 3$

[b] $3(x - 2) = 5x - 10$

7 The following table shows the marks of students in an exam :

Marks	6	9	12	15	17
No. of students	4	7	8	5	6

Find the arithmetic mean of these marks.

5

Math Inspection

Giza Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

1 If $\frac{x}{5} = \frac{42}{30}$, then $x = \dots\dots\dots$

(a) 7

(b) 8

(c) 6

(d) 63

2 If $A = \{5, 7\}$, what is the number of all subsets of set A ?

(a) 2

(b) 4

(c) 6

(d) 8

3 Which of the following represents the solution of : $3(2x + 5) = 15$ in $\mathbb{Q}$?

(a) 0

(b) -2

(c) -5

(d) 10

4 What is the type of the angle that supplements the straight angle ?

(a) Acute angle.

(b) Obtuse angle.

(c) Zero angle.

(d) Straight angle.

5 Which of the following sets of numbers can be used as side lengths of a triangle ?

(a) 4 cm. , 3 cm. , 7 cm.

(b) 5 cm. , 4 cm. , 9 cm.

(c) 7 cm. , 1 cm. , 2 cm.

(d) 9 cm. , 7 cm. , 5 cm.

6 In the opposite figure :

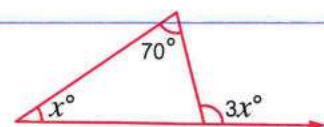
What is the value of x ?

(a) 70

(b) 140

(c) 35

(d) 100



7 For a set of values , if $\bar{x} = 10$ and $\sum (f \cdot x) = 100$, then $\sum f = \dots\dots\dots$

- (a) 80 (b) 10 (c) 30 (d) 50

8 When representing the opposite table using a pie chart , what is the measure of the central angle corresponding to the tea sector ?

Drink	Coffee	Tea	Juice
People	150	350	100

- (a) 240° (b) 210° (c) 120° (d) 150°

9 From the opposite stem-and-leaf plot , what is the median ?

Stems	Leaves
0	9
1	0 2 2 3 3 4 5 6 6
2	0 1 1 5 7 8 9
3	1 2 3

- (a) 16
(b) 17
(c) 18
(d) 20

Key 3 | 1 means 31 hours

Second Group :

► Answer the following :

1 A picture of a tree is drawn with a scale drawings 1 : 100. If the real height of the tree is 8 meters , find the height of the tree in the picture.

2 If $X = \{9, 3, 7\}$ and $Y = \{3, 5, 9\}$, find : $X \cup Y$, $X \cap Y$

3 Simplify the expression : $3(a - 2b) - 2(a + b)$, then find the value of the expression if $a = 5$ and $b = -1$

4 ABCD is a parallelogram whose diagonals intersect at M. If A (3 , 4) and M (− 1 , 5) , find the coordinates of C

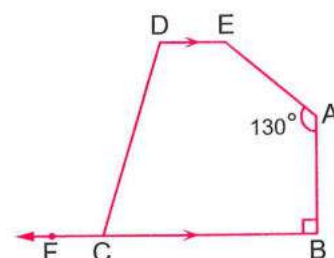
5 In the opposite figure :

$$F \in \overrightarrow{BC} , \overrightarrow{ED} \parallel \overrightarrow{BC}$$

$$, m(\angle A) = 130^\circ$$

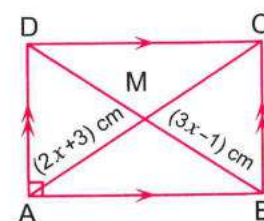
$$, m(\angle B) = 90^\circ$$

Find : $m(\angle E)$



6 In the opposite figure :

Find the value of x



- 7 The masses of a group of students in kilograms are listed in the following table :

Mass	72	73	75	76	77	78
Frequency	1	3	5	3	6	2

Find the average of masses.

6

West Administration

Alexandria Governorate



Answer the following questions : (Calculator in allowed)

First Group :

► Choose the correct answer :

- 1 If $\frac{6}{x} = \frac{3}{4}$, then $x = \dots\dots\dots$

(a) 8 (b) 6 (c) 4 (d) 3

- 2 If the length in drawing is 3 cm. and the real length is 27 meters , then the scale of the drawing is

(a) 1 : 9 (b) 1 : 90 (c) 1 : 900 (d) 1 : 9000

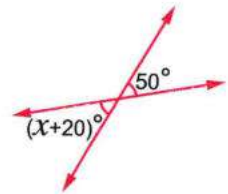
- 3 The mathematical expression which expresses Abd El-Rahman age after 10 years , if his age now is x years old is

(a) $x + 10$ (b) $x - 10$ (c) $10x$ (d) x

- 4 In the opposite figure :

The value of $x = \dots\dots\dots$

(a) 30 (b) 40
(c) 50 (d) 60



- 5 If A (3 , 1) and B (3 , - 1) , D is the midpoint of $\overline{AB}$, then D =

(a) (0 , 3) (b) (3 , 0) (c) (6 , 0) (d) (0 , 6)

- 6 The number of axes of symmetry of a rectangle is

(a) 0 (b) 1 (c) 2 (d) 3

- 7 The mode of the values 1 , 9 , 1 , 3 , 1 , 3 is

(a) 1 (b) 3 (c) 8 (d) 9

- 8 From the opposite stem-and-leaf plot

, the median of the set of values =

Stems | Leaves

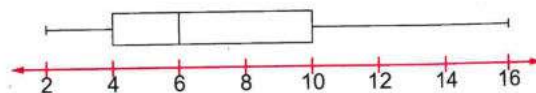
0 | 3 5 6
1 | 0 2 2 3

(a) 2 (b) 5
(c) 10 (d) 12

Key 0 | 3 means 3 marks

- 9 From the opposite box plot , the first quartile =

- (a) 2 (b) 4
(c) 10 (d) 14



Second Group :

► Answer the following questions :

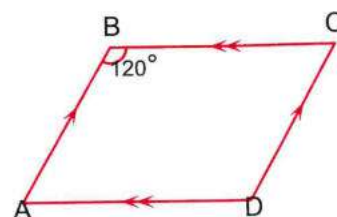
- 1 If $\{3, y, 5\} = \{x, 4, 3\}$, then find : $x + y$
 2 Find in the simplest form : $\frac{4}{14} \div \left(-\frac{1}{7} + \frac{9}{7} \right)$
 3 Find in $\mathbb{Q}$ the solution set of the equation : $3x + 2 = -7$

- 4 In the opposite figure :

ABCD is parallelogram , $m(\angle B) = 120^\circ$

[a] Find : $m(\angle A)$

[b] Find : $m(\angle C)$



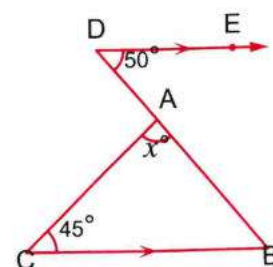
- 5 Find the measure of each interior angle of a regular hexagon.

- 6 In the opposite figure :

$\overrightarrow{DE} \parallel \overrightarrow{CB}$, $m(\angle C) = 45^\circ$

, $m(\angle D) = 50^\circ$

Find : the value of x



- 7 Find the mean of the following frequency distribution :

Marks	16	20	25	30
Frequency	2	3	1	1

7

Agami Zone
Math Supervision

Alexandria Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

- 1 An isosceles triangle , the lengths of two sides are 6 cm. , 3 cm. , then the length of the third side is
 (a) 3 cm. (b) 5 cm. (c) 6 cm. (d) 9 cm.

2 The mode of the values 7 , 8 , 8 , 9 , 7 , 8 is

(a) 7

(b) 8

(c) 9

(d) 6

3 If the sum of measures of two angles in a triangle is 104° , then the measure of the third angle is

(a) 104°

(b) 52°

(c) 76°

(d) 180°

4 If $\frac{5}{x} = \frac{30}{42}$, then $x =$

(a) 14

(b) 8

(c) 7

(d) 10

5 The number of the axes of symmetry of the regular pentagon is

(a) 5

(b) 3

(c) 4

(d) 6

6 The median of the values 12 , 15 , 11 , 14 , 10 is

(a) 10

(b) 11

(c) 12

(d) 14

7 What is the value of 10 % of 750 pounds ?

(a) 75 pounds.

(b) 7.5 pounds.

(c) 750 pounds.

(d) 7,500 pounds.

8 Which of the following is equal to $8y$?

(a) $4 + 4y$

(b) $5 + 3y$

(c) $9 - y$

(d) $10y - 2y$

9 The measure of the angle that complements an angle of measure 40° is

(a) 40°

(b) 50°

(c) 140°

(d) 90°

Second Group :

► Answer the following questions :

1 Find the coordinates of the midpoint of $\overline{AB}$ where A (5 , 6) , B (7 , 2)

2 Solve in $\mathbb{Q}$ the equation : $2x + 5 = 7$

3 Write all the subsets of the set $\{5 , 1\}$

4 In the opposite figure :

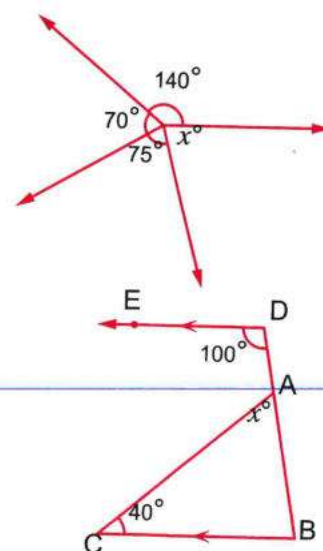
Find the value of x

5 In the opposite figure :

$\overrightarrow{DE} \parallel \overrightarrow{CB}$, $m(\angle C) = 40^\circ$

, $m(\angle D) = 100^\circ$

Find with proof the value of x



- 6 The following table represents the marks of students in an exam :

Marks (x)	8	9	10	11	12
Frequency (f)	6	8	14	8	4

Find the arithmetic mean of the marks.

- 7 Two numbers , the ratio between them is 3 : 4 , if the greater number is 32 , then find the smaller number.



Math Supervision

El-Kalyoubia Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

- 1 If $\frac{a}{b} = \frac{c}{d}$, then

(a) $ac = bd$

(b) $\frac{a}{d} = \frac{b}{c}$

(c) $\frac{b}{a} = \frac{d}{c}$

(d) $ab = cd$

- 2 What is the multiplicative inverse of $3\frac{1}{2}$?

(a) $-\frac{7}{2}$

(b) $2\frac{1}{3}$

(c) $\frac{2}{7}$

(d) $\frac{7}{2}$

- 3 What is the algebraic expression equivalent to the expression : $2x - 3 + 4x + 1$?

(a) $2x - 2$

(b) $-2x + 2$

(c) $-6x - 2$

(d) $-2 + 6x$

- 4 If the angles A and B are supplementary , and $m(\angle A) = 30^\circ$, then $m(\angle B) = \dots\dots\dots$

(a) 120°

(b) 60°

(c) 150°

(d) 180°

- 5 In the opposite figure :

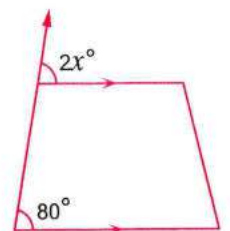
The value of x is

(a) 60

(b) 50

(c) 40

(d) 180



- 6 Which of the following cannot be used as side lengths of a triangle ?

(a) 4 cm. , 4 cm. , 8 cm.

(b) 5 cm. , 4 cm. , 8 cm.

(c) 8 cm. , 8 cm. , 8 cm.

(d) 9 cm. , 8 cm. , 7 cm.

- 7 From the opposite stem-and-leaf plot , what is the median ?

(a) 4

(b) 41

(c) 44

(d) 48

Stems	Leaves
2	1 3 6 8
3	2 4 4 8 9
4	1 5 5 6 7 8
5	3 4 7 9
Key	5 3 means 53

8 If the arithmetic mean of the numbers : $x + 2$, $x - 6$, $2x + 5$, 8 , $x + 1$ is 5 , what is the value of x ?

(a) 3

(b) 4

(c) 5

(d) 7

9 In the opposite bar graph :

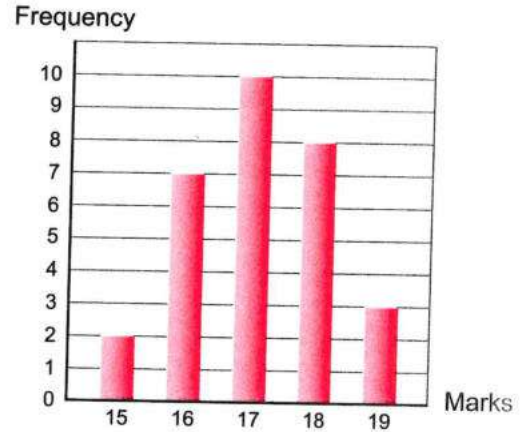
The mode mark is

(a) 15

(b) 17

(c) 18

(d) 19



Second Group :

► Answer each of the following questions :

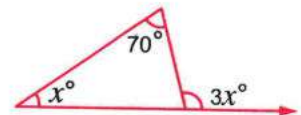
1 If the real length is 30 meters and the scale drawing is $1 : 10,000$, what is the length in the drawing in centimeters ?

2 If $A = \{1, 2, 8, 10\}$ and $B = \{2, 3, 6, 10\}$, find each of : $A \cup B$ and $A \cap B$

3 If $a = 3$, $b = 4$, $d = 5$, find the value of : $b^2 - a d$

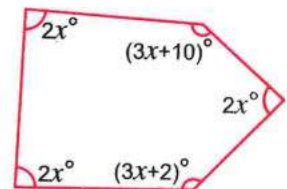
4 In the opposite figure :

Find the value of x



5 In the opposite figure :

Find the value of x



6 If $A(4, 5)$ and $B(-2, 7)$, what is the midpoint of $\overline{AB}$?

7 Represent the following table using a pie chart :

Favorite Color	Percentage
Red	25 %
Blue	30 %
Green	10 %
Yellow	35 %



Answer the following questions : (Calculator is allowed)

First Group :

► Choose the correct answer :

- 1 If the length in drawing is 2 cm. and the real length is 6 m. , then the scale drawing is

(a) 1 : 3 (b) 1 : 30 (c) 1 : 300 (d) 1 : 3,000

- 2 The additive inverse of $|-3|$ is

(a) 3 (b) -3 (c) 0 (d) $\frac{1}{3}$

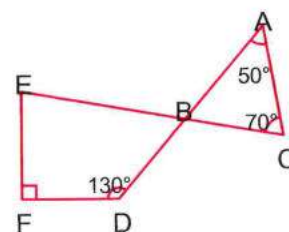
- 3 $a + a + a = \dots\dots\dots$

(a) $3a^3$ (b) a^3 (c) $3a$ (d) $a + 3$

- 4 In the opposite figure :

What is the measure of $\angle E$?

(a) 90° (b) 130°
(c) 60° (d) 80°



- 5 If the point $(k - 2, 3k + 9)$ lies on the X-axis , then $k = \dots\dots\dots$

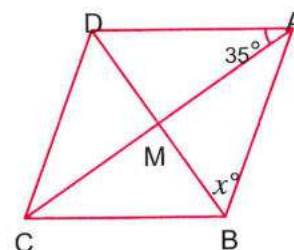
(a) 2 (b) -3 (c) 0 (d) 3

- 6 In the opposite figure :

ABCD is a rhombus

, then the value of $x = \dots\dots\dots$

(a) 35 (b) 55
(c) 45 (d) 65



- 7 The median of the numbers 25 , 15 , 7 , 18 , 16 , 30 is

(a) 16 (b) 17 (c) 18 (d) 25

- 8 From the opposite stem-and-leaf plot , what is the mode ?

(a) 4
(b) 23
(c) 34
(d) 42

Stems	Leaves
1	2 3 4
2	1 2 5 5
3	2 4 4 4 7
4	1 2
Key	3 2 means 32

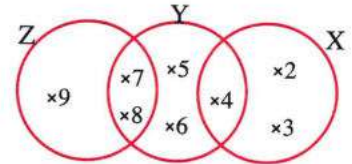
- 9 The measure of the central angle that represents $\frac{1}{4}$ of the circle equals
- (a) 45° (b) 120° (c) 90° (d) 180°

Second Group :

► Answer the following questions :

- 1 From the opposite Venn diagram , find :

- [a] $X \cap Y$
 [b] $Z \cup Y$
 [c] $X \cap Y \cap Z$



- 2 Find the result of subtracting : $-4x + 3y + 8$ from $5x + 8y - 3$

- 3 If M is the midpoint of $\overline{AB}$, where M (3 , 5) , A (x , 5) , B (4 , y)
 , find the values of : x and y

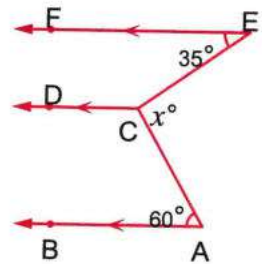
- 4 In the opposite figure :

$$\overrightarrow{AB} \parallel \overrightarrow{CD} \parallel \overrightarrow{EF}$$

$$, m(\angle A) = 60^\circ$$

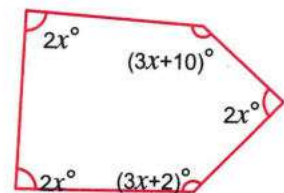
$$, m(\angle E) = 35^\circ$$

Find the value of x



- 5 From the opposite figure :

Find the value of x



- 6 A man deposited 50,000 LE in a bank with annual interest rate of 18% , what is the total amount he received after one year ?

- 7 The following table shows students marks in an exam :

Marks (x)	5	6	7	8	9	10
Frequency (f)	4	6	9	15	10	6

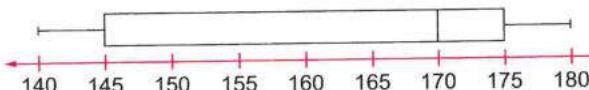
Find the mean of the students marks.



Answer the following questions :

First Group :

► Choose the correct answer :

- 1 If 4 cm. , 9 cm. , X cm. are the lengths of three sides of a triangle , then $X = \dots\dots\dots$
 (a) 5 (b) 13 (c) 4 (d) 9
- 2 The measure of the interior angle of a regular hexagon is $\dots\dots\dots$
 (a) 120° (b) 108° (c) 135° (d) 145°
- 3 The type of the angle that supplements an acute angle is $\dots\dots\dots$ angle.
 (a) an acute. (b) an obtuse. (c) a straight. (d) a reflex.
- 4 If the ratio among the measures of three angles around a point is 3 : 4 : 5 , then the measure of the greatest angle is $\dots\dots\dots$
 (a) 120° (b) 60° (c) 150° (d) 80°
- 5 The number of subsets of the set $\{2, 3, 5\}$ is $\dots\dots\dots$
 (a) 3 (b) 4 (c) 6 (d) 8
- 6 The solution set of the equation : $2X + \frac{1}{3} = 6$ in $\mathbb{Z}$ is $\dots\dots\dots$
 (a) $\{2\frac{5}{6}\}$ (b) $\{-1\}$ (c) $\{3\}$ (d) $\emptyset$
- 7 The opposite figure represents the box plot of the heights of 50 students in centimeters , then the sum of median and first quartile is $\dots\dots\dots$

 (a) 160 (b) 315 (c) 345 (d) 180
- 8 If the mean of the numbers : 2 , 5 , $2X - 3$, 7 , 1 is 6 , then the value of X is $\dots\dots\dots$
 (a) 9 (b) 4 (c) 5 (d) 6
- 9 The measure of the central angle of the circular sector which represents 35 % of the circle is $\dots\dots\dots$
 (a) 35° (b) 108° (c) 120° (d) 126°

Second Group :

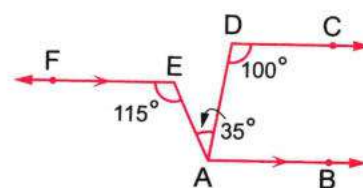
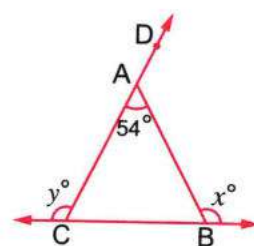
► Answer the following questions :

- 1 From the opposite stem-and-leaf plot , find :

- [a] The mode.
 [b] The median.
 [c] The range.

Stems	Leaves
2	1 1 2
3	2 3
4	2 2 2
5	0 1 3 5
Key	3 2 means 3.2

- 2 If the point M (4 , 3) is the midpoint of $\overline{AB}$ where A (X , 5) , B (2 , y) , then find with steps the values of X and y
- 3 Given that : $A = \{9 , 6 , 7 , 10\}$, $B = \{8 , 9 , 10\}$, then find
 [a] $A \cup B$ [b] $B \cap A$
- 4 A car consumes 7 liters of fuel to cover a distance of 84 km. How much fuel does it need to cover a distance of 156 km if it maintains the same fuel efficiency ?
- 5 Write in the simplest form the expression : $2(n - 3m) - 3(2n - 1)$, then find its value at $n = 2$, $m = -2$
- 6 In the opposite figure :
 If $m(\angle BAC) = 54^\circ$
 , then find with proof the value of : $x + y$



- 7 In the opposite figure :
 $\overrightarrow{AB} \parallel \overrightarrow{EF}$, $m(\angle D) = 100^\circ$
 $m(\angle E) = 115^\circ$, $m(\angle DAE) = 35^\circ$
 Prove that : $\overrightarrow{AB} \parallel \overrightarrow{DC}$

11

Maths Supervision

El-Dakahlia Governorate



Answer the following questions : (Calculator is permitted)

First Questions :

[a] Choose the correct answer :

- 1 From the opposite stem-and-leaf plot
 , what is the median ?

(a) 16

(b) 20

(c) 21

(d) 31

Stems	Leaves
0	9
1	0 2 3 4 5 6
2	1 5 6 7 8
3	1 2 3

Key 3 | 1 means 31 hours

- 2 In the opposite figure :

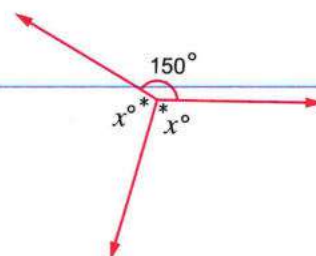
The value of X is

(a) 100

(b) 110

(c) 105

(d) 210



3 If $X \in \{7, 5, 8\} \cap \{7, 9, 3\}$, then $X = \dots\dots\dots$

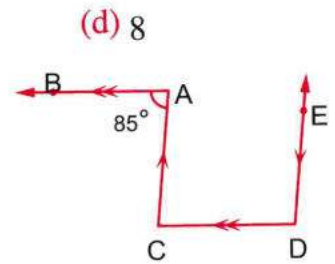
- (a) 3 (b) 5 (c) 7 (d) 8

[b] In the opposite figure :

$$\overrightarrow{AB} \parallel \overrightarrow{CD}, \overrightarrow{DE} \parallel \overrightarrow{AC}$$

$$, m(\angle A) = 85^\circ$$

Find with proof : $m(\angle C)$, $m(\angle D)$



Second Questions :

[a] Use the addition properties in $\mathbb{Q}$ to find the result of :

$$\frac{-5}{11} + \frac{1}{6} + \frac{2}{11} + \left(\frac{-1}{6}\right) \text{ in the simplest form.}$$

[b] Choose the correct answer :

1 If $\frac{2}{5} = \frac{X}{15}$, then $X = \dots\dots\dots$

- (a) -6 (b) 6 (c) 10 (d) -10

2 What is the measure of the interior angle of a regular hexagon ?

- (a) 90° (b) 108° (c) 120° (d) 135°

3 If the mean of the values 5, 6, X , 9 is 7, then the value of $X = \dots\dots\dots$

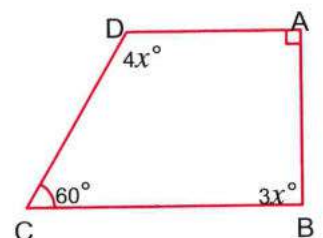
- (a) 5 (b) 6 (c) 8 (d) 9

Third Questions :

[a] In the opposite figure :

ABCD is a quadrilateral

, find the value of X



[b] Choose the correct answer :

1 If the age of Omar now is k years, which mathematical expression expresses Omar's age after 8 years ?

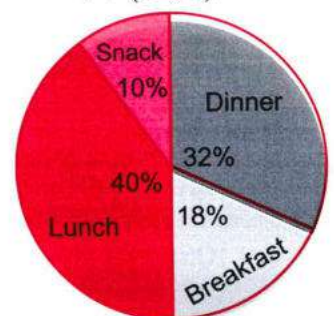
- (a) $k - 8$ (b) $k + 8$ (c) $8k$ (d) $k \div 8$

2 If $A(4, -6)$, $B(6, 2)$, which of the following points is the midpoint of $\overline{AB}$?

- (a) $(10, -4)$ (b) $(5, -2)$ (c) $(-2, -8)$ (d) $(2, 8)$

3 The opposite pie chart shows the percentage of calories Amira had in her meals on one day. If Amira had 2500 calories that day, how many calories did she have at lunch ?

- (a) 1,000 (b) 450
(c) 250 (d) 800



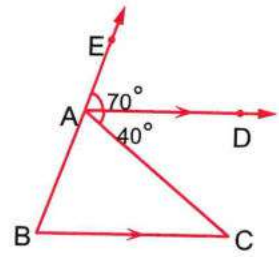
Fourth Questions :

[a] In the opposite figure :

$$\overrightarrow{AD} \parallel \overrightarrow{BC}, m(\angle EAD) = 70^\circ$$

$$, m(\angle DAC) = 40^\circ$$

Find with proof : the measures of the interior angles of $\triangle ABC$



[b] Find in $\mathbb{Q}$ the solution set of the equation : $3x + 1 = 10$

Fifth Questions :

[a] The following table shows the number of minutes a group of people spend on the telephone.

Minutes	3	4	5	6	7
Frequency	10	25	30	25	10

Calculate the arithmetic mean of time a person spends on the telephone.

[b] An item in a clothing store costs 320 pounds. If it has a 40 % discount rate , find its price after the discount.

12

Directorate of Education
Maths Supervision

Ismailia Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

1 $4 \times |-3| = \dots\dots\dots$

(a) 12

(b) - 12

(c) 1

(d) - 1

2 $6b - 2b + b = \dots\dots\dots$

(a) 9

(b) 5b

(c) 9b

(d) 5

3 A parallelogram with equal side lengths is called a

(a) rectangle.

(b) rhombus.

(c) trapezium.

(d) square.

4 The range for the values 20 , 31 , 9 , 10 , 19 is

(a) 23

(b) 8

(c) 31

(d) 22

5 The measure of each interior angle of a regular pentagon equals

(a) 120°

(b) 720°

(c) 108°

(d) 360°

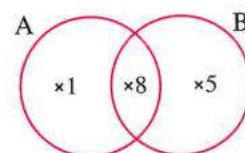
6 From the opposite Venn diagram , $A \cap B = \dots\dots\dots$

(a) {1}

(b) {8}

(c) {5}

(d) {1 , 8 , 5}



7 The opposite figure is a parallelogram

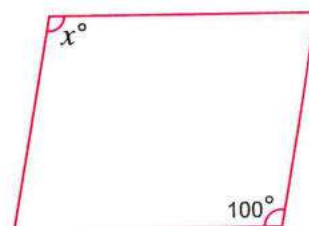
, then $x = \dots\dots\dots$

(a) 40

(b) 180

(c) 80

(d) 100



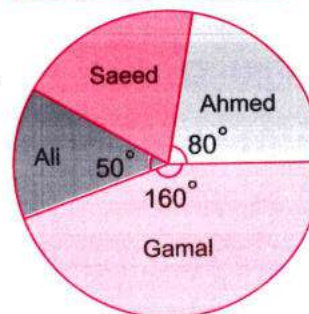
8 The opposite figure represents the shares of some people in a trade , then the measure of the central angle of Saeed's share equals

(a) 70°

(b) 360°

(c) 90°

(d) 100°



9 From the opposite stem-and-leaf plot

, the mode =

(a) 14

(b) 25

(c) 32

(d) 33

Stems	Leaves
1	2
2	1 4 5 5
3	3 9
Key	1 2 means 12

Second Group :

► Answer the following questions :

1 An amount of 1500 pounds was divided between two persons with the ratio 2 : 3
Find the share of each of them.

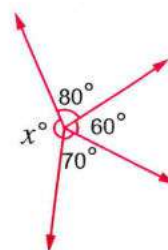
2 Using the properties of addition , find the result of : $\frac{4}{7} + \frac{-1}{5} + \frac{10}{7} + \frac{1}{5}$

3 Find the solution set of the equation in $\mathbb{Z}$: $5x + 2 = 12$

4 Find the coordinates of the midpoint of $\overline{AB}$ where A (7 , 4) , B (1 , 4)

5 In the opposite figure :

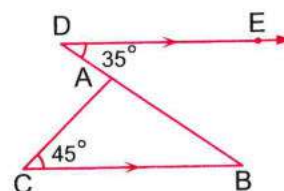
Find the value of x by proof.



6 In the opposite figure :

$\overline{CB} \parallel \overline{DE}$

Find by proof : $m(\angle B)$ and $m(\angle CAB)$



- 7 The opposite frequency table represents the daily expenses of a student during a week. Find the arithmetic mean.

Daily expenses (X)	30	20	25	16
Frequency (f)	1	3	1	2

13

Educational Directorate
Mathematics Supervision

Port Said Governorate



Answer the following questions :

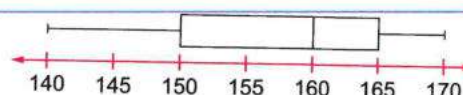
First Group :

► Choose the correct answer :

- 1 $\frac{1}{2} + \frac{1}{2} = \dots\dots\dots$
 (a) 1 (b) $\frac{5}{10}$ (c) -1 (d) $\frac{2}{4}$
- 2 If the scale drawing is 1 : 100 , the real length is 2 m , then the length in picture is cm.
 (a) 250 (b) 2 (c) 200 (d) 20
- 3 The mathematical expression of : 3 is added to the number X is
 (a) $X + 3$ (b) $2X + 3$ (c) $2X - 3$ (d) $X - 3$
- 4 The lengths 10 cm. , 6 cm. , cm. are lengths of sides of a triangle.
 (a) 3 (b) 20 (c) 4 (d) 5
- 5 The sum of measures of the interior angles of a pentagon is
 (a) 360° (b) 540° (c) 720° (d) 180°
- 6 The angle of measure 20° complement an angle of measure
 (a) 180° (b) 90° (c) 70° (d) 160°
- 7 The median of the values : 4 , 3 , 1 , 2 , 9 is
 (a) 2 (b) 1 (c) 3 (d) 9
- 8 Using the opposite stem-and-leaf plot , the mode is
 (a) 43
 (b) 23
 (c) 47
 (d) 31
- 9 Using the opposite box plot , the first quartile is

Stem	Leaves
2	0 3
3	1 1 1 2
4	3 7 8 9
5	2 3 7

Key 3 | 2 means 32



- (a) 140 (b) 150
 (c) 160 (d) 165

Second Group :

► Answer the following questions :

- 1 If 7,200 LE is distributed among three persons with the ratio of 3 : 4 : 5 , find the share of each one of them.

- 2 Find the solution set in $\mathbb{Q}$ of the equation : $3x + 1 = 13$

- 3 Find the coordinates of the midpoint of $\overline{AB}$ where A (1 , - 6) , B (5 , 2)

- 4 If $A = \{7 , 3 , 2 , 5\}$, $B = \{2 , 1\}$, then find :

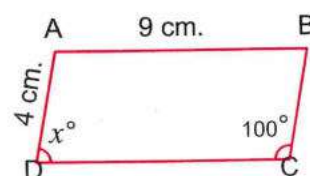
[a] $A \cap B$

[b] $A \cup B$

- 5 In the opposite figure :

ABCD is a parallelogram

Find : the value of x , DC , the perimeter of ABCD



- 6 In the opposite figure :

Find : the value of x



- 7 The following table shows the marks of 10 students in a math exam :

Marks (x)	2	3	5	9
Frequency (f)	2	4	3	1

Find the arithmetic mean of the marks of the students.

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Directorate of Education
Mathematics Supervision

Kafr El-Sheikh Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

- 1 If $\frac{x-1}{2} = \frac{9}{6}$, then the value of $x =$

(a) 3

(b) 4

(c) 5

(d) 6

- 2 The multiplicative inverse of $3\frac{1}{2}$ is

(a) $\frac{7}{2}$

(b) $\frac{2}{7}$

(c) $3\frac{1}{2}$

(d) $-3\frac{1}{2}$

- 3 If $2x = 4$, then the value of $2x + 1 =$

(a) 6

(b) 5

(c) 8

(d) 9

- 4 The projection of (3 , 4) on the x -axis is

(a) (4 , 0)

(b) (0 , 4)

(c) (3 , 0)

(d) (0 , 3)

5 If the lengths of two sides in an isosceles triangle are 4 cm. and 8 cm. , then the length of the third side is cm.

- (a) 4 (b) 8 (c) 5 (d) 6

6 The sum of the measures of 3 accumulative angles at one point the sum of the measures of 5 accumulative angles at one point.

- (a) > (b) < (c) = (d) otherwise.

7 If $\{x, 2\} = \{5, y\}$, then $x + y = \dots\dots\dots$

- (a) 5 (b) 3 (c) 8 (d) 7

8 $\frac{1}{4} + \frac{2}{4} = \frac{\dots\dots\dots}{8}$

- (a) 3 (b) 6 (c) 8 (d) 4

9 The mode of the values 3 , 4 , 5 , 3 and 3 is

- (a) 2 (b) 3 (c) 4 (d) 5

Second Group :

► Answer the following questions :

1 If the price of a TV is 27,000 LE after discount rate 10 % , what was the price of the TV before the discount ?

2 Find the result of adding : $5x + 8y + 3$ and $2x - 3y - 1$

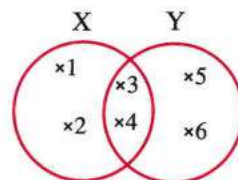
3 If the ratio between the length of a rectangle and its width is 4 : 3 and its perimeter is 28 cm. , find its area.

4 From the opposite Venn diagram , find :

[a] X

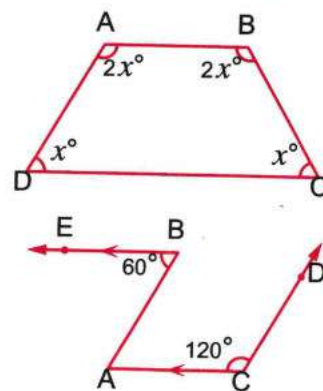
[b] $X \cap Y$

[c] $X \cup Y$



5 In the opposite figure :

Find : the value of x



6 In the opposite figure :

$\overline{CA} \parallel \overline{BE}$, $m(\angle B) = 60^\circ$

, $m(\angle C) = 120^\circ$

Prove that : $\overline{AB} \parallel \overline{CD}$

7 Represent the following data using a pie chart :

Color	Red	Blue	Green
Percentage	25 %	30 %	45 %



Answer the following questions :

First Group :

► Choose the correct answer :

1 If $\frac{28}{32} = \frac{7}{a-2}$, what is the value of a ?

- (a) 7 (b) 8 (c) 9 (d) 10

2 Which algebraic expression is equivalent to : $4x - 3 - 9x + 4$?

- (a) $5x - 1$ (b) $-5x + 1$ (c) $-5x - 1$ (d) $5x + 1$

3 If the point A ($3k - 6$, $2k - 10$) lies on the x-axis, then k =

- (a) -2 (b) 2 (c) 5 (d) -5

4 If the scale drawing is 1 : 100 and the real length is 6 meters, what is the length in the drawing in centimeters ?

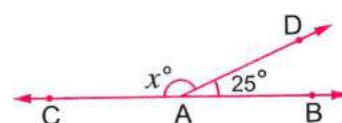
- (a) 0.06 (b) 0.6 (c) 6 (d) 60

5 In the opposite figure :

If $A \in \overleftrightarrow{BC}$

, what is the value of x ?

- (a) 135 (b) 145 (c) 155 (d) 65



6 From the opposite stem-and-leaf plot, what is the median ?

- (a) 23 (b) 29
(c) 30 (d) 34

Stems	Leaves
1	0 1
2	0 2 2 3 9
3	4 5 5 5 7 8

Key 3 | 4 means 34

7 The measure of an interior angle of a regular octagon is

- (a) 108° (b) 120° (c) 135° (d) 145°

8 The mode of the values : 3, 1, 9, 1, 9, 9 is

- (a) 1 (b) 3 (c) 9 (d) 8

9 The third quartile of the values : 66, 60, 64, 61, 65, 62 is

- (a) 61 (b) 62 (c) 64 (d) 65

Second Group :

► Answer the following questions :

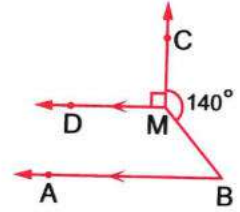
1 A mobile phone costs 10,000 pounds and has a 10 % discount rate.
Find the price after the discount.

2 In the opposite figure :

$$\overrightarrow{MC} \perp \overrightarrow{MD}, \overrightarrow{BA} \parallel \overrightarrow{MD}$$

$$m(\angle BMC) = 140^\circ$$

Find with proof : $m(\angle B)$



3 Find the solution set of each of the following equations in $\mathbb{Z}$:

[a] $5x + 1 = -9$

[b] $3(x - 2) = 18$

4 The following table shows the masses of 20 students in a class (in kilograms) :

Mass	72	73	75	76	77	78
Frequency	1	3	5	3	6	2

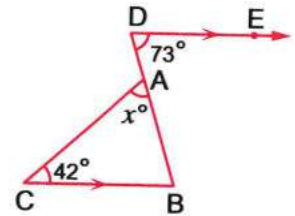
Find the mean mass of the students.

5 In the opposite figure :

ABC is a triangle , $A \in \overline{BD}$, $\overrightarrow{DE} \parallel \overrightarrow{CB}$

$$m(\angle D) = 73^\circ, m(\angle C) = 42^\circ$$

Find with proof : the value of x

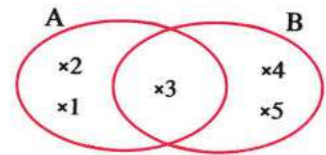


6 By using the opposite Venn diagram , write each of the following using listing method :

[a] A

[b] $A \cap B$

[c] $A \cup B$



7 If ABCD is a parallelogram where A (2 , 2) , B (7 , 2) and C (9 , 5) , determine the coordinates of the following :

[a] The point of the intersection of its diagonals.

[b] The vertex D

16

Educational Administration
Official Language Schools

Beni Suef Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

1 If $\frac{35}{21} = \frac{x}{3}$, what is the value of x ?

(a) 3

(b) 5

(c) 7

(d) 6

2 If $A = \{8, 9, 6\}$ and $B = \{2, 6, 7\}$, then which set expresses $A \cup B$?

- (a) $\{6\}$ (b) $\{2, 7\}$
 (c) $\{8, 9\}$ (d) $\{2, 6, 7, 8, 9\}$

3 What is the algebraic expression equivalent to the expression : $2x - 3 - 4x + 1$?

- (a) $2x - 2$ (b) $-2x + 2$ (c) $-6x - 4$ (d) $-2 - 2x$

4 From the opposite stem-and-leaf plot, what is the median?

- (a) 19 (b) 21
 (c) 24 (d) 32

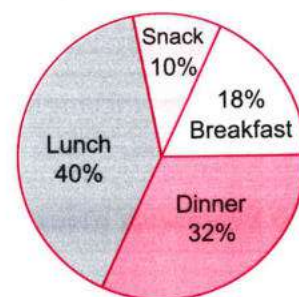
Stem	Leaves
1	9 9
2	0 1 4
3	2 2 3 5
Key	3 2 means 32

5 Which of the following charts does not display the actual data?

- (a) Don't plot (b) Histogram (c) Stem-and-leaf plot (d) Bar graph

6 The opposite pie chart shows the percentages of calories Sally had in her meals on one day. What is the measure of the central angle for the lunch sector?

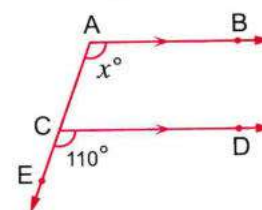
- (a) 36° (b) 65°
 (c) 116° (d) 144°



7 In the opposite figure :

What is the value of x ?

- (a) 70 (b) 90
 (c) 110 (d) 130



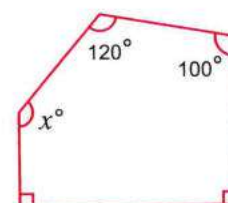
8 Which of the following sets of numbers can not be used as side lengths of a triangle?

- (a) 4 cm. , 7 cm. , 7 cm. (b) 3 cm. , 4 cm. , 7 cm.
 (c) 7 cm. , 7 cm. , 7 cm. (d) 9 cm , 7 cm. , 5 cm.

9 In the opposite figure :

What is the value of x ?

- (a) 120 (b) 140
 (c) 150 (d) 135



Second Group :

► Answer the following questions :

1 If a TV price after discount rate of 16 % is 12,600 LE , what is the TV price before the discount ?

2 Find the result in its simplest form : $-0.2\bar{3} \div \frac{7}{60}$

3 Find in $\mathbb{Q}$ the solution set of the equation : $3(x - 1) = -1$

4 The following frequency table shows a student's daily pocket money over two weeks :

Daily pocket money in LE (x)	25	29	34	39	55
Number of days (f)	3	5	3	2	1

Find the average daily pocket money for this student.

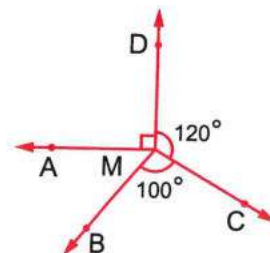
5 In the opposite figure :

$$\overrightarrow{MA} \cap \overrightarrow{MB} \cap \overrightarrow{MC} \cap \overrightarrow{MD} = \{M\}$$

$$, \overrightarrow{MA} \perp \overrightarrow{MD}$$

$$, m(\angle CMD) = 120^\circ \text{ and } m(\angle BMC) = 100^\circ$$

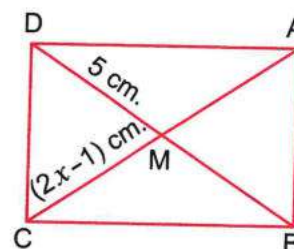
Calculate : $m(\angle AMB)$



6 In the opposite figure :

If ABCD is a rectangle

, find the value of x



7 Determine the coordinates of the midpoint of $\overline{AB}$ where A (1 , - 6) and B (5 , 2)

17

Deir Mawas Directorate
Maths Supervision

El-Menia Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

1 If $A = \{5, 7\}$, $B = \{5, 7, 4\}$, then $A \cap B = \dots\dots\dots$

(a) $\{5, 7\}$

(b) $\{5, 7, 4\}$

(c) $\{5\}$

(d) $\{7\}$

2 Which of the following doesn't equal $4a$?

(a) $a + 3a$

(b) $a + a + a + a$

(c) $2a + 2a$

(d) $4 + a$

3 The diagonals are perpendicular in the

(a) rectangle.

(b) square.

(c) parallelogram.

(d) trapezium.

4 If the lengths of two sides in an isosceles triangle are 3 cm. and 6 cm. then the length of the third side is cm.

(a) 3

(b) 6

(c) 5

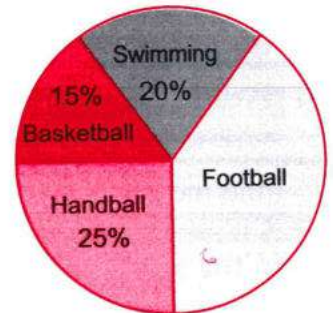
(d) 4

5 The measure of an interior angle of a regular hexagon is

- (a) 108° (b) 120° (c) 135° (d) 145°

6 The opposite pie chart represents the favorite sports of 2,000 students in a school. How many students prefer handball ?

- (a) 500
(b) 700
(c) 800
(d) 900



7 From the opposite stem-and-leaf plot :

The mode =

- (a) 3.6 (b) 6
(c) 3.8 (d) 36

Stems	Leaves
2	0 2 3
3	4 6 6 8
4	5 7 8
5	2 9
Key	4 5 means 4.5

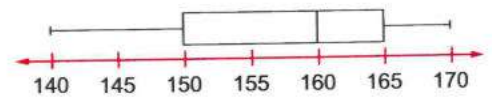
8 If $\frac{3}{4} = \frac{x}{100}$, then $x =$

- (a) 20 (b) 30 (c) 75 (d) 50

9 From the opposite box plot :

The median =

- (a) 140 (b) 150 (c) 160 (d) 165



Second Group :

► Answer the following questions :

1 A man bought a TV set. He was given a 5 % discount rate of its marked price , if the discount was 500 LE Find the price after discount.

2 Find the arithmetic mean of the following frequency distribution :

The set	5	15	25	35	45	Total
Frequency	4	5	6	3	2	20

3 ABCD is a parallelogram, whose diagonals intersect at M where
A (- 4 , 2) , B (4 , - 2) , C (9 , 1)

Find : [a] The coordinates of M

[b] The coordinates of D

4 Find in Q the solution set of the equation : $\frac{1}{2}x + 4 = 7$

5 Use the distribution property to find the value of :

$$\frac{5}{9} \times 4 + \frac{5}{9} \times 6 - \frac{5}{9} \times 10$$

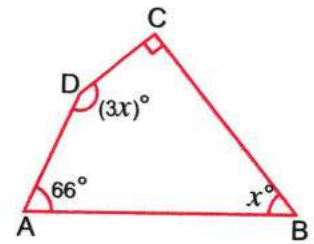
6 In the opposite figure :

$$m(\angle A) = 66^\circ$$

$$, m(\angle B) = x^\circ , m(\angle C) = 90^\circ$$

$$, m(\angle D) = 3x^\circ$$

Find with proof the value of x



7 In the opposite figure :

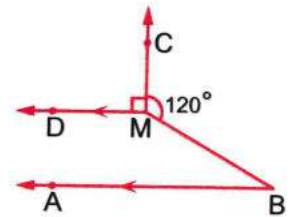
$$\overrightarrow{BA} \parallel \overrightarrow{MD} , m(\angle BMC) = 120^\circ$$

$$, \text{ and } m(\angle CMD) = 90^\circ$$

Find with proof :

[a] $m(\angle BMD)$

[b] $m(\angle B)$



18

Qena Directorate
Experimental Language Schools

Qena Governorate



Answer the following questions :

First Group :

► **Choose the correct answer :**

1 If $\frac{1}{5} = \frac{3}{x}$, then $x = \dots\dots\dots$

(a) 15

(b) 2

(c) 7

(d) 6

2 If $x \in \{1, 6, 9\}$, which of the following can not be a value of x ?

(a) 2

(b) 6

(c) 9

(d) 1

3 The mathematical expression that represents : Subtracting 7 from x is

(a) $x + 7$

(b) $x - 7$

(c) $-7 - x$

(d) $7 - x$

4 If the lengths of two sides in an isosceles triangle are 4 cm. and 8 cm. , then the length of the third side is cm.

(a) 8

(b) 7

(c) 4

(d) 10

5 The projection of the point (5 , 3) on the x -axis is

(a) (0 , 3)

(b) (3 , 0)

(c) (0 , 0)

(d) (5 , 0)

6 If X (4 , 2) and Y (6 , 6) , then the midpoint of $\overline{XY}$ is the point

(a) (4 , 4)

(b) (6 , 6)

(c) (2 , 2)

(d) (5 , 4)

7 If the arithmetic mean of the values : 3 , 5 , 8 , y is 5 , then the value of y is

(a) 5

(b) 4

(c) 3

(d) 1

- 8 The measure of the central angle of the sector whose area is $\frac{1}{6}$ of the area of the circle is
- (a) 40° (b) 120° (c) 90° (d) 60°
- 9 If the mode of the values : 9 , 7 , $m + 1$ is 9 , then the value of m is
- (a) 8 (b) 9 (c) 6 (d) 7

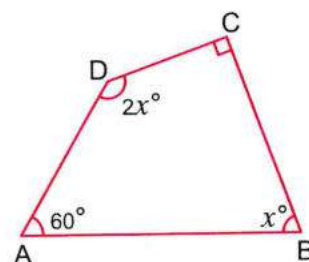
Second Group

► Answer the following questions :

- 1 If a map of a scale drawing 1 : 2,000,000 and the distance between two points on the map is 5 cm. , what is the real distance between these two points in kilometers ?
- 2 If $A = \{1, 2, 3, 4\}$, $B = \{1, 2, 8\}$, find :
- [a] $A \cup B$ [b] $A \cap B$
- 3 Find the solution set of : $2x - 3 = 5$ in $\mathbb{Q}$

4 In the opposite figure :

Calculate with proof the value of x

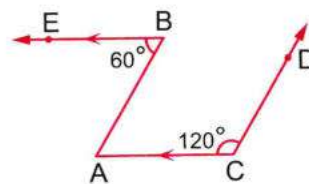


5 In the opposite figure :

$\overrightarrow{CA} \parallel \overrightarrow{BE}$, $m(\angle B) = 60^\circ$

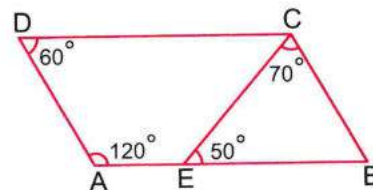
, $m(\angle C) = 120^\circ$

Prove that : $\overrightarrow{AB} \parallel \overrightarrow{CD}$



6 In the opposite figure :

Prove that : ABCD is a parallelogram.



7 In the opposite stem-and-leaf plot :

Find : [a] The mode.

[b] The median.

[c] The range.

Stems	Leaves
3	8 9
4	1 2 2 2 5 6
5	0 3 4
Key	3 8 means 38



Answer the following questions :

First Group :

► **Choose the correct answer :**

- 1 When representing the opposite table with a pie chart , then the measure of the central angle for the anise sector is

Drink	Tea	Anise	Coffee
People	350	150	100

- (a) 60° (b) 90° (c) 210° (d) 150°
- 2 The mean of four numbers is 120 , what is the sum of these numbers ?
- (a) 128 (b) 100 (c) 480 (d) 122
- 3 Which of the following is equivalent to $-5 - (-10)$?
- (a) $5 - 10$ (b) $10 - 5$ (c) $5 + 10$ (d) $-5 - 10$
- 4 The angle with measure 32° is vertically opposite to an angle with measure
- (a) 32° (b) 80° (c) 90° (d) 180°
- 5 ABCD is a parallelogram , in which $AC = BD$ and $\overline{AC}$ is not perpendicular to $\overline{BD}$, then ABCD is a
- (a) trapezium. (b) rhombus. (c) rectangle. (d) square.
- 6 If a father wants to distribute 400 pounds between two sons with the ratio 1 : 3 , then the smaller share is pounds.
- (a) 200 (b) 400 (c) 600 (d) 100
- 7 The number of axes of symmetry of a rectangle is
- (a) 2 (b) 3 (c) 4 (d) 6
- 8 The S.S of the equation $2x - 9 = -11$ in $\mathbb{Q}$ is
- (a) $\{2\}$ (b) $\{-1\}$ (c) $\{4\}$ (d) $\{0\}$
- 9 The mode of the values 5 , 4 , 6 , 8 , 4 , 6 , 5 , 6 is
- (a) 4 (b) 5 (c) 8 (d) 6

Second Group :

► **Answer the following :**

- 1 If the point A $(-3, 4k - 8)$ lies on the X-axis , determine the quadrant in which the point B $(k - 9, -3k)$ lies.

2 From the opposite stem-and-leaf plot :

Find the mode , the median.

Stems	Leaves
2	1 1 2
3	2 3
4	2 2 2
5	1 3 5
Key	3 2 means 32

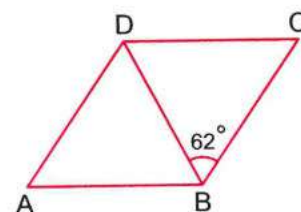
3 What is the increase of $-2a - b + 6$ than $-6 - 3a - 4b$?

4 In the opposite figure :

ABCD is a rhombus

, $m(\angle DBC) = 62^\circ$

Find : $m(\angle C)$

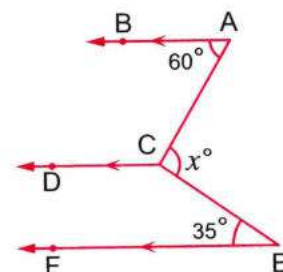


5 Ahmed bought a refrigerator with a 10 % discount rate. If he saved 800 LE , what is the price of the refrigerator after the discount ?

6 If the distance between two cities on a map drawn at a scale drawing of 1 : 1,000,000 is 5 cm. , find the real distance in km.

7 From the opposite figure :

Find the value of x



Kom Ombo & Nasr Nuba
Math Supervision

Aswan Governorate



Answer the following questions :

First Group :

► Choose the correct answer :

1 If $A = \{8, 9, 6\}$, $B = \{2, 6, 7\}$, what is the set that represents $A \cap B$?

(a) $\{6\}$

(b) $\{2, 7\}$

(c) $\{8, 9\}$

(d) $\{2, 6, 7, 8, 9\}$

2 If $x : 36 = 25 : 20$, then what is the value of x ?

(a) 14

(b) 28

(c) 45

(d) 60

- 3 The solution set of the equation : $4x + 9 = 3 + 2x$ in $\mathbb{Q}$ is
- (a) $\{-3\}$ (b) $\{-1\}$ (c) $\{1\}$ (d) $\{3\}$
- 4 If the mode of the values : 6 , 9 , $x + 3$, 8 , 5 is 5 , then $x =$
- (a) 3 (b) 2 (c) 1 (d) 4
- 5 If $\angle A$ supplements $\angle B$ and $m(\angle A) = 40^\circ$, then $m(\angle B) =$
- (a) 50° (b) 180° (c) 140° (d) 360°
- 6 If the perimeter of a rectangle is 24 cm. and its length is m cm. , then the width of the rectangle equals cm.
- (a) $m - 12$ (b) $12 - m$ (c) $12 + m$ (d) $12m$
- 7 The measure of an interior angle of a regular hexagon is
- (a) 108° (b) 120° (c) 145° (d) 135°
- 8 For a set of data , if $\sum (f \cdot x) = 1500$, $\bar{x} = 20$, what is the value of $\sum f$?
- (a) 75 (b) 150 (c) 3000 (d) 30000
- 9 From the opposite stem-and-leaf plot , what is the median ?
- (a) 16 (b) 17 (c) 18 (d) 29

Stems	Leaves
1	0 1
2	0 2 2 3 9
3	4 5 5 5 7 8
Key	3 4 means 34

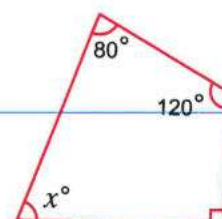
Second Group :

► Answer the following :

- 1 Add : $a + 2b + 5$ and $3a - 2b - 8$
- 2 If $x = \frac{1}{2}$, $y = \frac{2}{5}$, $z = \frac{3}{10}$, find the value of : $(x + y) \div z$
- 3 If the real length is 90 meters and the scale drawing is 1 : 10,000 , What is the length in the drawing in centimeters ?
- 4 If the point M (4 , 3) is the midpoint of $\overline{AB}$, where B (2 , y) , A (x , 5) , find the value of : $(x + y)$

- 5 In the opposite figure :

Find the value of x



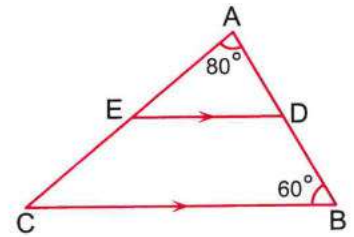
6 In the opposite figure :

ABC is a triangle in which :

$\overline{ED} \parallel \overline{CB}$, $m(\angle A) = 80^\circ$, $m(\angle B) = 60^\circ$

, $D \in \overline{AB}$, $E \in \overline{AC}$

Find : $m(\angle AED)$



7 A shopping mall recorded sales activity during the day with the following results :

Market components	Food products	Dairy	Juices and Beverages	Sweets
Percentage	45%	35%		5%

Complete the table and represent this data by using a pie chart.

Answers of final Assessment

First group :

- 1 b 2 d 3 b 4 b
 5 b 6 a 7 a

Second group :

- 1 c 2 c 3 c 4 d
 5 c 6 d 7 b

Third group :

1

$$\begin{aligned}
 3(a - 2b) - 2(a + b) &= 3a - 6b - 2a - 2b \\
 &= 3a - 2a - 6b - 2b = a - 8b
 \end{aligned}$$

$$\text{at } a = 5, b = -1$$

$$a - 8b = 5 - 8 \times (-1) = 5 + 8 = 13$$

2

First : Second : Third : Sum

$$4 : 5 : 3 : 12$$

$$? : ? : ? : 750,000$$

$$\begin{aligned}
 \text{What the first person paid} &= \frac{4 \times 750,000}{12} \\
 &= 250,000 \text{ LE}
 \end{aligned}$$

$$\begin{aligned}
 \text{What the second person paid} &= \frac{5 \times 750,000}{12} \\
 &= 312,500 \text{ LE}
 \end{aligned}$$

$$\begin{aligned}
 \text{What the third person paid} &= \frac{3 \times 750,000}{12} \\
 &= 187,500 \text{ LE}
 \end{aligned}$$

3

Mass in kg (x)	Frequency (f)	(f . x)
72	1	72
73	3	219
75	5	375
76	3	228
77	6	462
78	2	156
Sum	20	1,512

$$\text{The mean} = \frac{1,512}{20} = 75.6 \text{ kg.}$$

4

$\therefore$ ABCDEFGH is a regular octagon

$$\therefore m(\angle HAB) = \frac{6 \times 180^\circ}{8} = 135^\circ$$

$\therefore$ ABMKL is a regular pentagon

$$\therefore m(\angle LAB) = \frac{3 \times 180^\circ}{5} = 108^\circ$$

$$\therefore m(\angle HAL) = 135^\circ - 108^\circ = 27^\circ$$

5

$$\therefore m(\angle MAB) + m(\angle ABM) = m(\angle CMB)$$

$$\therefore m(\angle MAB) = 70^\circ - 40^\circ = 30^\circ$$

$$\therefore m(\angle MAB) = m(\angle MCD)$$

and they are two alternating interior angles

$$\therefore \overline{AB} \parallel \overline{DC}$$

$$\therefore \overline{AD} \parallel \overline{BC}$$

$\therefore$ ABCD is a parallelogram

Answers of the schools examinations

1

Cairo

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 d | 3 b |
| 4 a | 5 d | 6 b |
| 7 c | 8 a | 9 b |

Second Group :

- 1 [a] $X \cap Y = \{5\}$
 [b] $X \cup Y = \{2, 3, 5, 7\}$
- 2 $3x + 2y + 3$
- 3 The sum of parts = $2 + 3 = 5$ parts
 The value of each part = $\frac{5,000}{5} = 1,000$ LE
 The share of the first son = $1,000 \times 2 = 2,000$ LE
 The share of the second son = $1,000 \times 3 = 3,000$ LE
- 4 $\because \overline{AB} \parallel \overline{CD}$, $\overleftrightarrow{BC}$ is a transversal
 $\therefore m(\angle B) + m(\angle C) = 180^\circ$
 (Two interior angles on the same side of the transversal)
 $\therefore m(\angle C) = 180^\circ - 100^\circ = 80^\circ$
 $\therefore ABCD$ is a quadrilateral
 $\therefore$ the sum of measures of its interior angles = 360°
 $\therefore m(\angle D) = 360^\circ - (50^\circ + 100^\circ + 80^\circ) = 130^\circ$
- 5 [a] The number of students who prefer banana
 = $40\% \times 150 = 60$ students
 [b] The percentage of students who prefer peach
 = $100\% - (40\% + 35\% + 20\%) = 5\%$
 [c] The measure of the central angle of the apple
 sector = $35\% \times 360^\circ = 126^\circ$
- 6 In $\triangle ABC$:
 $\therefore m(\angle A) + m(\angle B) + m(\angle C) = 180^\circ$
 $\therefore 3y + 2y + y = 180$
 $\therefore 6y = 180$
 $\therefore y = \frac{180}{6} = 30$
- 7 [a] $m(\text{reflex } \angle A) = 360^\circ - 126^\circ = 234^\circ$
 [b] $\because \overline{AB} \parallel \overline{CD}$, $\overleftrightarrow{AC}$ is a transversal
 $\therefore m(\angle DCE) = m(\angle BAC)$
 (corresponding angles)
 $\therefore 3x = 126 \quad \therefore x = 42$

2

Cairo

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 c | 3 c |
| 4 c | 5 d | 6 b |
| 7 a | 8 d | 9 d |

Second Group :

- 1 The sum of parts = $3 + 2 = 5$ parts
 The value of each part = $\frac{3,600}{5} = 720$ LE
 The share of the first person = $3 \times 720 = 2,160$ LE
 The share of the second person = $2 \times 720 = 1,440$ LE
- 2 $5x + 14 = 4 + 3x$
 $5x - 3x = 4 - 14$
 $2x = -10$
 $x = -\frac{10}{2} = -5$
 The solution set = $\{-5\}$
- 3 $\because \overline{DE} \parallel \overline{CB}$, $\overleftrightarrow{DB}$ is a transversal
 $\therefore m(\angle B) = m(\angle D) = 55^\circ$
 (alternating interior angles)
- In $\triangle ABC$:
 $\therefore m(\angle BAC) + m(\angle B) + m(\angle C) = 180^\circ$
 $\therefore m(\angle BAC) = 180^\circ - (55^\circ + 35^\circ) = 90^\circ$
 $\therefore x = 90$
- 4 $\because m(\angle BDC) = 360^\circ - (90^\circ + 50^\circ + 80^\circ) = 140^\circ$
 $\therefore x = 140$
- 5 In $\triangle CEF$:
 $\therefore m(\angle ECF) = 180^\circ - (30^\circ + 90^\circ) = 60^\circ$
 $\therefore m(\angle BCD) = m(\angle ECF) = 60^\circ$ (V.O.A)
 $\therefore ABCD$ is a quadrilateral.
 $\therefore$ The sum of measure of interior angles = 360°
 $\therefore 3x + 5x + 60 + 4x = 360$
 $\therefore 12x + 60 = 360$
 $\therefore 12x = 360 - 60 = 300$
 $\therefore x = \frac{300}{12} = 25$
- 6 [a] $A \cup B = \{2, 3, 5, 7\}$
 [b] $A \cap B = B = \{2, 7\}$

7	x	f	$x \cdot f$
	71	1	71
	72	2	144
	73	3	219
	74	4	296
	75	5	375
	76	3	228
	77	2	154
	The sum	20	1,487

The mean = $\frac{\sum (x \cdot f)}{\sum f} = \frac{1,487}{20} = 74.35$ kilogram.

3 Cairo

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 a | 3 c |
| 4 d | 5 a | 6 b |
| 7 b | 8 d | 9 b |

Second Group :

- 1 First : Second : Third
 300,000 : 400,000 : 100,000 ($\div 100,000$)
 3 : 4 : 1
 sum of parts = $3 + 4 + 1 = 8$ parts
 The value of each part = $\frac{160,000}{8} = 20,000$ LE
 The first person's share = $3 \times 20,000 = 60,000$ LE
 The second person's share = $4 \times 20,000 = 80,000$ LE
 The third person's share = $1 \times 20,000 = 20,000$ LE
- 2 $\therefore$ Each 1 cm on the map represents 20 km in reality.
 $\therefore$ The real distance = $20 \times 7 = 140$ km.
- 3 $7x + 3y - 2$
- 4 $\therefore m(\angle ABD) + m(\angle DBE) + m(\angle CBE) = 180^\circ$
 $\therefore 2x + 90 + 60 = 180 \quad \therefore 2x + 150 = 180$
 $\therefore 2x = 180 - 150 = 30 \quad \therefore x = \frac{30}{2} = 15$
- 5 $\therefore \overline{AE}$ bisects $\angle CAB$
 $\therefore m(\angle CAE) = m(\angle BAE) = 32^\circ$
 $\therefore m(\angle BAC) = 2 \times 32^\circ = 64^\circ$
 $\therefore m(\angle ACD) = m(\angle BAC) = 64^\circ$
 and they are alternating interior angles
 $\therefore \overline{AB} \parallel \overline{CD}$

6 $\therefore ABCD$ is a parallelogram.

$\therefore CD = AB \quad \therefore 2a = 14$

$\therefore a = 14 \div 2 = 7$

$\therefore \overline{AB} \parallel \overline{CD}$, $\overline{BD}$ is a transversal.

$\therefore m(\angle ABD) = m(\angle BDC)$

(two alternating interior angles)

$\therefore b + 20 = 30 \quad \therefore b = 30 - 20 = 10$

$\therefore m(\angle BCD) = m(\angle BAD) = 60^\circ$

7	x	f	$x \cdot f$
	28	2	56
	29	3	87
	32	6	192
	33	4	132
	35	5	175
	The sum	20	642

The mean = $\frac{\sum (x \cdot f)}{\sum f} = \frac{642}{20} = 32.1$

4 Giza

First Group :

- | | | |
|-----|-----|-----|
| 1 c | 2 c | 3 c |
| 4 b | 5 b | 6 c |
| 7 c | 8 c | 9 c |

Second Group :

- 1 In $\triangle CEF$:
 $\therefore m(\angle ECF) = 180^\circ - (30^\circ + 90^\circ) = 60^\circ$
 $\therefore m(\angle BCD) = m(\angle ECF) = 60^\circ$ (V.O.A.)
 $\therefore ABCD$ is a quadrilateral.
 $\therefore m(\angle A) + m(\angle B) + m(\angle BCD) + m(\angle D) = 360^\circ$
 $\therefore 3x + 5x + 60 + 4x = 360$
 $\therefore 12x + 60 = 360$
 $\therefore 12x = 360 - 60 = 300$
 $\therefore x = \frac{300}{12} \quad \therefore x = 25$
- 2 [a] $X \cap Y = \emptyset$
 [b] $Y \cup X = \{1, 2, 3, 4, 5, 6, 7, 9\}$
- 3 $\therefore 3x + 3x + 3x + 6x = 360$
 $\therefore 15x = 360$
 $\therefore x = \frac{360}{15} = 24$

4 Scale drawing = $\frac{\text{height in drawing}}{\text{real height}}$

$$\frac{1}{100} = \frac{3 \text{ cm.}}{\text{real height}}$$

$$\text{the real height} = \frac{100 \times 3}{1} = 300 \text{ cm.} = 3 \text{ m.}$$

5 $\therefore \overline{AE}$ bisects $\angle BAC$

$$\therefore m(\angle CAE) = m(\angle BAE) = 24^\circ$$

$$\therefore m(\angle BAC) = 2 \times 24^\circ = 48^\circ$$

$$\therefore m(\angle ACD) = m(\angle BAC) = 48^\circ$$

and they are alternating interior angles

$$\therefore \overline{AB} \parallel \overline{CD}$$

6 [a] $-2(x+1) = 3$

$$-2x - 2 = 3$$

$$-2x = 3 + 2 = 5$$

$$x = \frac{-5}{2} \notin \mathbb{N}$$

the solution set = $\emptyset$

[b] $3(x-2) = 5x-10$

$$3x - 6 = 5x - 10$$

$$3x - 5x = -10 + 6$$

$$-2x = -4$$

$$x = \frac{-4}{-2} = 2$$

the solution set = $\{2\}$

7

x	f	$x \cdot f$
6	4	24
9	7	63
12	8	96
15	5	75
17	6	102
The sum	30	360

$$\text{the mean} = \frac{\sum(x \cdot f)}{\sum(f)} = \frac{360}{30} = 12 \text{ marks.}$$

5

Giza

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 b | 3 a |
| 4 c | 5 d | 6 c |
| 7 b | 8 b | 9 c |

Second Group :

1 scale drawing = $\frac{\text{height in the picture}}{\text{real height}}$

$$\frac{1}{100} = \frac{\text{height in the picture}}{8 \times 100}$$

$$\text{Height in the picture} = \frac{800 \times 1}{100} = 8 \text{ cm.}$$

2 $X \cup Y = \{3, 5, 7, 9\}$

$$X \cap Y = \{3, 9\}$$

3 $3(a-2b) - 2(a+b) = 3a - 6b - 2a - 2b$
 $= 3a - 2a - 6b - 2b$
 $= a - 8b$

$$\text{at } a = 5, b = -1$$

$$a - 8b = 5 - 8 \times (-1) = 5 + 8 = 13$$

4 Let the point $C = (x, y)$

$\therefore M$ is the intersection point of the diagonals.

$\therefore M$ is also the midpoint of $\overline{AC}$

$$\therefore M = \left(\frac{3+x}{2}, \frac{4+y}{2} \right) = (-1, 5)$$

$$\therefore \frac{3+x}{2} = -1 \quad \therefore 3+x = -2$$

$$\therefore x = -2 - 3 = -5$$

$$\therefore \frac{4+y}{2} = 5 \quad \therefore 4+y = 10$$

$$\therefore y = 10 - 4 = 6$$

$$\therefore C = (-5, 6)$$

5 $\therefore \overline{ED} \parallel \overline{BC}, \overline{CD}$ is a transversal

$$\therefore m(\angle D) + m(\angle BCD) = 180^\circ$$

(two interior angles on the same side of the transversal)

$\therefore ABCDE$ is a pentagon

$$\therefore 180^\circ + 130^\circ + 90^\circ + m(\angle E) = 540^\circ$$

$$\therefore 400 + m(\angle E) = 540^\circ$$

$$\therefore m(\angle E) = 540^\circ - 400^\circ = 140^\circ$$

6 $\therefore \overline{AB} \parallel \overline{DC}, \overline{BC} \parallel \overline{AD}, m(\angle A) = 90^\circ$

$\therefore ABCD$ is a rectangle.

$\therefore$ The two diagonals are equal in length and bisect each other.

$$\therefore MB = MA$$

$$\therefore 3x - 1 = 2x + 3$$

$$\therefore 3x - 2x = 3 + 1$$

$$\therefore x = 4$$

7

x	f	$x \cdot f$
72	1	72
73	3	219
75	5	375
76	3	228
77	6	462
78	2	156
The sum	20	1,512

$$\text{The average} = \frac{\sum(x \cdot f)}{\sum(f)} = \frac{1,512}{20} = 75.6 \text{ km.}$$

First Group :

- 1 a 2 c 3 a
 4 a 5 b 6 c
 7 a 8 c 9 b

Second Group :

- 1 $x = 5, y = 4$
 $\therefore x + y = 5 + 4 = 9$
 2 $\frac{4}{14} \div \left(1 - \frac{1}{7} + \frac{9}{7}\right)$
 $= \frac{2}{7} \div \left(\frac{1}{7} + \frac{9}{7}\right)$
 $= \frac{2}{7} \div \frac{10}{7}$
 $= \frac{2}{7} \times \frac{7}{10} = \frac{2}{10} = \frac{1}{5}$
 3 $3x + 2 = -7$
 $3x = -7 - 2 = -9$
 $x = \frac{-9}{3} = -3$
 The solution set = $\{-3\}$
 4 $\therefore ABCD$ is a parallelogram
 $\therefore m(\angle A) + m(\angle B) = 180^\circ$
 $\therefore m(\angle A) = 180^\circ - 120^\circ = 60^\circ$
 $\therefore m(\angle C) = m(\angle A) = 60^\circ$
 5 The measure of each interior angle of a regular Hexagon
 $= \frac{180^\circ \times 4}{6} = 120^\circ$
 6 $\therefore \overline{DE} \parallel \overline{CB}, \overline{BD}$ is a transversal.
 $\therefore m(\angle B) = m(\angle D) = 50^\circ$
 (alternating interior angles)

In $\triangle ABC$:

$$\therefore m(\angle A) = 180^\circ - (45^\circ + 50^\circ) = 85^\circ$$

$$\therefore x = 85$$

x	f	$x \cdot f$
16	2	32
20	3	60
25	1	25
30	1	30
The sum	7	147

$$\text{The mean} = \frac{\sum(x \cdot f)}{\sum(f)} = \frac{147}{7} = 21$$

First Group :

- 1 c 2 b 3 c
 4 c 5 a 6 c
 7 a 8 d 9 b

Second Group :

- 1 $\left(\frac{5+7}{2}, \frac{6+2}{2}\right) = (6, 4)$
 2 $2x + 5 = 7$
 $2x = 7 - 5 = 2$
 $x = \frac{2}{2} = 1$
 The solution set = $\{1\}$
 3 The subsets are $\{5\}, \{1\}, \{5, 1\}$ and $\emptyset$
 4 $\therefore x + 75 + 70 + 140 = 360$
 $\therefore x + 285 = 360$
 $\therefore x = 360 - 285$
 $\therefore x = 75$
 5 $\therefore \overline{DE} \parallel \overline{CB}, \overline{BD}$ is a transversal
 $\therefore m(\angle B) + m(\angle D) = 180^\circ$
 (Two interior angles in the same side of the transversal)
 $\therefore m(\angle B) = 180^\circ - 100^\circ = 80^\circ$
 In $\triangle ABC$:
 $\therefore m(\angle A) = 180^\circ - (40^\circ + 80^\circ) = 60^\circ$
 $\therefore x = 60$

x	f	$x \cdot f$
8	6	48
9	8	72
10	14	140
11	8	88
12	4	48
The sum	40	396

$$\text{The mean} = \frac{\sum(x \cdot f)}{\sum(f)} = \frac{396}{40} = 9.9 \text{ marks}$$

- 7 Smaller number : Greater number
 3 : 4
 ? : 32

$$\text{The smaller number} = \frac{3 \times 32}{4} = 24$$

8

El-Kalyoubia

First Group :

- 1 c 2 c 3 a
 4 c 5 c 6 a
 7 b 8 a 9 b

Second Group :

1 Scale drawing = $\frac{\text{length in drawing}}{\text{real length}}$

$$\frac{1}{10,000} = \frac{\text{length in the drawing}}{30 \times 100}$$

the length in the drawing = $\frac{1 \times 3,000}{10,000} = 0.3 \text{ cm.}$

2 $A \cup B = \{1, 2, 3, 6, 8, 10\}$
 $A \cap B = \{2, 10\}$

3 $b^2 - a d = (4)^2 - 3 \times 5 = 16 - 15 = 1$

4 $3x = x + 70$

$$3x - x = 70$$

$$2x = 70$$

$$x = \frac{70}{2} = 35$$

5 $\therefore$ The figure is a pentagon

$$\therefore \text{the sum of measures of its interior angles} = 3 \times 180^\circ = 540^\circ$$

$$\therefore 2x + 3x + 10 + 2x + 3x + 2 + 2x = 540$$

$$\therefore 12x + 12 = 540$$

$$\therefore 12x = 540 - 12 = 528$$

$$\therefore x = \frac{528}{12} = 44$$

6 $\left(\frac{4+(-2)}{2}, \frac{5+7}{2}\right) = (1, 6)$

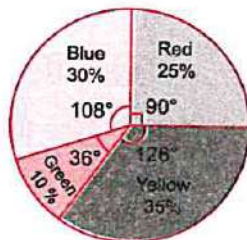
7 The measure of the central angle representing each sector :

$$\text{Red } \frac{25}{100} \times 360^\circ = 90^\circ$$

$$\text{Blue } \frac{30}{100} \times 360^\circ = 108^\circ$$

$$\text{Green } \frac{10}{100} \times 360^\circ = 36^\circ$$

$$\text{Yellow } \frac{35}{100} \times 360^\circ = 126^\circ$$



9

El-Monofia

First Group :

- 1 c 2 b 3 c
 4 d 5 b 6 b
 7 b 8 c 9 c

Second Group :

1 [a] $X \cap Y = \{4\}$

[b] $Z \cup Y = \{4, 5, 6, 7, 8, 9\}$

[c] $X \cap Y \cap Z = \emptyset$

2 $9x + 5y - 11$

3 $\therefore M = \left(\frac{x+4}{2}, \frac{5+y}{2}\right) = (3, 5)$

$$\therefore \frac{x+4}{2} = 3 \quad \therefore x+4 = 6 \quad \therefore x = 2$$

$$\therefore \frac{5+y}{2} = 5 \quad \therefore 5+y = 10 \quad \therefore y = 5$$

4 $\therefore \overrightarrow{AB} \parallel \overrightarrow{CD}, \overrightarrow{AC}$ is a transversal

$$\therefore m(\angle A) + m(\angle ACD) = 180^\circ$$

(two interior angles in the same side of the transversal)

$$\therefore m(\angle ACD) = 180^\circ - 60^\circ = 120^\circ$$

$\therefore \overrightarrow{CD} \parallel \overrightarrow{EF}, \overrightarrow{CE}$ is a transversal

$$\therefore m(\angle ECD) + m(\angle E) = 180^\circ$$

(two interior angles is the same side of the transversal)

$$\therefore m(\angle ECD) = 180^\circ - 35^\circ = 145^\circ$$

$\therefore$ the sum of the measures of the accumulative angles at a point C = 360°

$$\therefore x = 360 - (120 + 145) = 95$$

5 $\therefore$ The figure is a pentagon

$$\therefore \text{the sum of measures of its interior angles} = 3 \times 180^\circ = 540^\circ$$

$$\therefore 2x + (3x + 10) + 2x + (3x + 2) + 2x = 540$$

$$\therefore 12x + 12 = 540$$

$$\therefore 12x = 540 - 12 = 528$$

$$\therefore x = \frac{528}{12} = 44$$

6 The annual interest value $18\% \times 50,000 = 9,000 \text{ LE}$

$$\text{The total amount after one year} = 50,000 + 9,000 = 59,000 \text{ LE}$$

7

x	f	x.f
5	4	20
6	6	36
7	9	63
8	15	120
9	10	90
10	6	60
The sum	50	389

$$\text{The mean} = \frac{\sum(x \cdot f)}{\sum(f)} = \frac{389}{50} = 7.78 \text{ mark.}$$

First Group :

- [1] d [2] a [3] b
 [4] c [5] d [6] d
 [7] b [8] a [9] d

Second Group :

- [1] [a] The mode = 4.2
 [b] The median = $\frac{4.2 + 4.2}{2} = \frac{8.4}{2} = 4.2$
 [c] The range = $5.5 - 2.1 = 3.4$
- [2] $M = \left(\frac{x+2}{2}, \frac{5+y}{2} \right) = (4, 3)$
 $\therefore \frac{x+2}{2} = 4 \quad \therefore x+2 = 8 \quad \therefore x = 8 - 2 = 6$
 $\therefore \frac{5+y}{2} = 3 \quad \therefore y+5 = 6 \quad \therefore y = 6 - 5 = 1$
- [3] [a] $A \cup B = \{6, 7, 8, 9, 10\}$
 [b] $B \cap A = \{9, 10\}$
- [4] Let the liters of fuel be x
 $\frac{7}{84} = \frac{x}{156}$
 $x = \frac{7 \times 156}{84} = 13$ liters
- [5] The expression = $2n - 6m - 6n + 3$
 $= -4n - 6m + 3$
 The numerical value = $-4 \times 2 - 6 \times (-2) + 3$
 $= -8 + 12 + 3 = 7$
- [6] In $\triangle ABC$
 $\therefore x = 54^\circ + m(\angle ACB)$
 $\therefore m(\angle ACB) = x - 54^\circ$
 $\therefore x - 54 + y = 180$
 $\therefore x + y = 180 + 54 = 234$
- [7] $\overline{AB} \parallel \overline{EF}$, $\overline{AE}$ is a transversal
 $\therefore m(\angle BAE) = m(\angle E) = 115^\circ$
 (alternating interior angles)
 $\therefore m(\angle BAD) = 115^\circ - 35^\circ = 80^\circ$
 $\therefore m(\angle D) + m(\angle BAD) = 100^\circ + 80^\circ = 180^\circ$
 and they are two interior angles in the same side of the transversal
 $\therefore \overline{AB} \parallel \overline{DC}$

First Question :

- [a] [1] c [2] c [3] c
 [b] $\therefore \overline{AB} \parallel \overline{CD}$, $\overline{AC}$ is a transversal
 $\therefore m(\angle C) = m(\angle A) = 85^\circ$
 (Two alternating interior angles)
 $\therefore \overline{DE} \parallel \overline{AC}$, $\overline{CD}$ is a transversal
 $\therefore m(\angle C) + m(\angle D) = 180^\circ$
 (Two interior angles on the same side of the transversal).
 $\therefore m(\angle D) = 180^\circ - 85^\circ = 95^\circ$

Second Question :

- [a] $\frac{-5}{11} + \frac{1}{6} + \frac{2}{11} + \left(\frac{-1}{6} \right)$
 $= \frac{-5}{11} + \frac{2}{11} + \frac{1}{6} - \frac{1}{6} = \left(\frac{-5}{11} + \frac{2}{11} \right) + \left(\frac{1}{6} - \frac{1}{6} \right)$
 $= \frac{-3}{11} + 0 = \frac{-3}{11}$
- [b] [1] b [2] c [3] c

Third Question :

- [a] $\therefore ABCD$ is a quadrilateral
 $\therefore 90 + 3x + 60 + 4x = 360$
 $\therefore 7x + 150 = 360$
 $\therefore 7x = 360 - 150 = 210$
 $\therefore x = \frac{210}{7} = 30$
- [b] [1] b [2] b [3] a

Fourth Question :

- [a] $\therefore \overline{AD} \parallel \overline{BC}$, $\overline{AB}$ is a transversal.
 $\therefore m(\angle B) = m(\angle EAD) = 70^\circ$
 (corresponding angles)
 $\therefore \overline{AD} \parallel \overline{BC}$, $\overline{AC}$ is a transversal.
 $\therefore m(\angle C) = m(\angle DAC) = 40^\circ$
 (alternating interior angles)
 In $\triangle ABC$:
 $\therefore m(\angle BAC) = 180^\circ - (70^\circ + 40^\circ) = 70^\circ$
- [b] $3x + 1 = 10$
 $3x = 10 - 1$
 $3x = 9$
 $x = \frac{9}{3} = 3$
 The solution set = $\{3\}$

Fifth Question :

[a]

x	f	$x \cdot f$
3	10	30
4	25	100
5	30	150
6	25	150
7	10	70
The sum	100	500

The mean = $\frac{\sum (x \cdot f)}{\sum f} = \frac{500}{100} = 5$ minutes

[b] The discount = $\frac{40}{100} \times 320 = 128$ pounds
 The price after discount = $320 - 128 = 192$ pounds

12 Ismailia

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 b | 3 b |
| 4 d | 5 c | 6 b |
| 7 d | 8 a | 9 b |

Second Group :

- 1 The sum of parts = $2 + 3 = 5$ parts
 The value of one part = $\frac{1500}{5} = 300$ pounds
 The share of the first person = $2 \times 300 = 600$ pounds
 The share of the second person = $3 \times 300 = 900$ pounds
- 2 $\frac{4}{7} + \frac{10}{7} + \frac{1}{5} + \left(\frac{-1}{5}\right) = \left(\frac{4}{7} + \frac{10}{7}\right) + \left(\frac{1}{5} + \left(\frac{-1}{5}\right)\right) = \frac{14}{7} + 0 = 2$
- 3 $5x + 2 = 12$
 $5x = 12 - 2$
 $5x = 10$
 $x = \frac{10}{5} = 2$
 the solution set = $\{2\}$
- 4 $\left(\frac{7+1}{2}, \frac{4+4}{2}\right) = (4, 4)$
- 5 $x = 360 - (70 + 60 + 80) = 150$
- 6 $\because \overline{CB} \parallel \overline{DE}$, $\overline{BD}$ is a transversal
 $\therefore m(\angle B) = m(\angle D) = 35^\circ$
 (alternating interior angles)
 In $\triangle ABC$:
 $\therefore m(\angle CAB) = 180^\circ - (35^\circ + 45^\circ) = 100^\circ$

7

x	f	$x \cdot f$
30	1	30
20	3	60
25	1	25
16	2	32
The sum	7	147

The mean = $\frac{\sum (x \cdot f)}{\sum f} = \frac{147}{7} = 21$

13 Port Said

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 b | 3 a |
| 4 d | 5 b | 6 c |
| 7 c | 8 d | 9 b |

Second Group :

- 1 First : Second : Third : Sum
 3 : 4 : 5 : 12
 ? : ? : ? : 7,200
 The share of the first person = $\frac{3 \times 7,200}{12} = 1,800$ LE
 The share of the second person = $\frac{4 \times 7,200}{12} = 2,400$ LE
 The share of the third person = $\frac{5 \times 7,200}{12} = 3,000$ LE
- 2 $3x + 1 = 13$
 $3x = 13 - 1$
 $3x = 12$
 $x = \frac{12}{3} = 4$
 The solution set = $\{4\}$
- 3 $\left(\frac{1+5}{2}, \frac{-6+2}{2}\right) = (3, -2)$
- 4 [a] $A \cap B = \{2\}$
 [b] $A \cup B = \{1, 2, 3, 5, 7\}$
- 5 $\because$ ABCD is a parallelogram
 $\therefore m(\angle D) + m(\angle C) = 180^\circ$
 $\therefore x = 180 - 100 = 80$
 $\therefore$ the perimeter of ABCD = $2(4 + 9) = 26$ cm.
- 6 $\therefore x = 180^\circ - (20^\circ + 40^\circ) = 120^\circ$

x	f	$x \cdot f$
2	2	4
3	4	12
5	3	15
9	1	9
The sum	10	40

The mean = $\frac{\sum (x \cdot f)}{\sum f} = \frac{40}{10} = 4$ marks

14 Kafr El-Sheikh

First Group :

- | | | |
|-----|-----|-----|
| 1 b | 2 b | 3 b |
| 4 c | 5 b | 6 c |
| 7 d | 8 b | 9 b |

Second Group :

- 1 Price before discount : Discount rate : Price after discount

$$\begin{array}{ccc} 100 \% & : & 10 \% & : & 90 \% \\ ? & : & & : & 27,000 \end{array}$$

The price before discount = $\frac{27,000 \times 100}{90}$
= 30,000 LE

- 2 $7x + 5y + 2$
- 3 Length + width = $\frac{28}{2} = 14$ cm.
The ratio between length and width = 4 : 3
the sum of parts = 7
the value of one part = $\frac{14}{7} = 2$
length = $4 \times 2 = 8$ cm.
width = $3 \times 2 = 6$ cm.
the area = $8 \times 6 = 48 \text{ cm}^2$
- 4 [a] $X = \{1, 2, 3, 4\}$
[b] $X \cap Y = \{3, 4\}$
[c] $X \cup Y = \{1, 2, 3, 4, 5, 6\}$

- 5 $\therefore$ ABCD is a quadrilateral.

$$\therefore 2x + 2x + x + x = 360$$

$$\therefore 6x = 360$$

$$\therefore x = \frac{360}{6} = 60$$

- 6 $\overleftrightarrow{CA} \parallel \overleftrightarrow{BE}$, $\overleftrightarrow{AB}$ is a transversal.
 $\therefore m(\angle A) = m(\angle B) = 60^\circ$
(alternating interior angles)

$$\therefore m(\angle A) + m(\angle C) = 60^\circ + 120^\circ = 180^\circ$$

and they are two interior angles in the same side of the transversal.

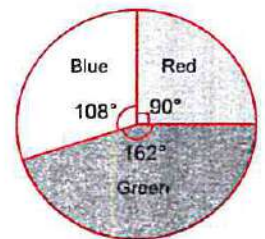
$$\therefore \overline{AB} \parallel \overline{CD}$$

- 7 The measure of the central angle of each sector :

$$\text{Red} : 25 \% \times 360^\circ = 90^\circ$$

$$\text{Blue} : 30 \% \times 360^\circ = 108^\circ$$

$$\text{Green} : 45 \% \times 360^\circ = 162^\circ$$



15 El-Beheira

First Group :

- | | | |
|-----|-----|-----|
| 1 d | 2 b | 3 c |
| 4 c | 5 c | 6 b |
| 7 c | 8 c | 9 d |

Second Group :

- 1 Original price : Discount rate : Price after discount

$$\begin{array}{ccc} 100 \% & : & 10 \% & : & 90 \% \\ 10,000 & : & & : & ? \end{array}$$

The price after discount = $\frac{10,000 \times 90}{100} = 9,000$ LE

- 2 $\therefore m(\angle CMD) + m(\angle BMC) + m(\angle BMD) = 360^\circ$

$$\therefore m(\angle BMD) = 360^\circ - (90^\circ + 140^\circ) = 130^\circ$$

$$\therefore \overline{BA} \parallel \overline{MD}, \overline{BM} \text{ is a transversal.}$$

$$\therefore m(\angle B) + m(\angle BMD) = 180^\circ$$

(two interior angles and on one side of the transversal)

$$\therefore m(\angle B) = 180^\circ - 130^\circ = 50^\circ$$

- 3 [a] $5x + 1 = -9$

$$5x = -9 - 1$$

$$5x = -10$$

$$x = \frac{-10}{5} = -2$$

$$\text{the solution set} = \{-2\}$$

- [b] $3(x - 2) = 18$

$$x - 2 = \frac{18}{3} = 6$$

$$x = 6 + 2 = 8$$

$$\text{the solution set} = \{8\}$$

x	f	$x \cdot f$
72	1	72
73	3	219
75	5	375
76	3	228
77	6	462
78	2	156
The sum	20	1,512

The mean = $\frac{\sum(x \cdot f)}{\sum(f)} = \frac{1,512}{20} = 75.6$ kg.

5 $\therefore \overline{DE} \parallel \overline{CB}$, $\overline{BD}$ is a transversal.

$\therefore m(\angle B) = m(\angle D) = 73^\circ$

(alternating interior angles)

In $\triangle ABC$:

$\therefore m(\angle CAB) = 180^\circ - (42^\circ + 73^\circ) = 65^\circ$

$\therefore x = 65$

6 [a] $A = \{1, 2, 3\}$

[b] $A \cap B = \{3\}$

[c] $A \cup B = \{1, 2, 3, 4, 5\}$

7 [a] The intersection point of the two diagonals

$= \left(\frac{2+9}{2}, \frac{2+5}{2} \right) = (5.5, 3.5)$

[b] Let the point D (x, y)

$\therefore \left(\frac{7+x}{2}, \frac{2+y}{2} \right) = (5.5, 3.5)$

$\therefore \frac{7+x}{2} = 5.5 \quad \therefore 7+x = 11$

$\therefore x = 11 - 7 = 4$

$\therefore \frac{2+y}{2} = 3.5 \quad \therefore 2+y = 7$

$\therefore y = 7 - 2 = 5 \quad \therefore D(4, 5)$

16 Beni Suf

First Group :

- | | | |
|-----|-----|-----|
| 1 b | 2 d | 3 d |
| 4 c | 5 b | 6 d |
| 7 c | 8 b | 9 b |

Second Group :

- 1
- | | | |
|-----------------------|-----------------|------------------------|
| Price before discount | : Discount rate | : Price after discount |
| 100 % | : 16 % | : 84 % |
| ? | : | : 12,600 |
- The price before discount = $\frac{12,600 \times 100}{84} = 15,000$ LE

2 $-0.2\overline{3} \div \frac{7}{60} = -\frac{7}{30} \times \frac{60}{7} = -2$

3 $3(x-1) = -1$

$x-1 = -\frac{1}{3}$

$x = -\frac{1}{3} + 1 = \frac{2}{3}$

$\therefore$ the solution set = $\left\{ \frac{2}{3} \right\}$

x	f	$x \cdot f$
25	3	75
29	5	145
34	3	102
39	2	78
55	1	55
The sum	14	455

The average daily pocket money

$= \frac{\sum(x \cdot f)}{\sum(f)} = \frac{455}{14} = 32.5$ L.E.

5 $m(\angle AMB) = 360^\circ - (90^\circ + 120^\circ + 100^\circ) = 50^\circ$

6 $\therefore$ ABCD is a rectangle

$\therefore$ the two diagonals are equal in length and bisect each other

$\therefore MC = MD$

$\therefore 2x - 1 = 5$

$\therefore 2x = 5 + 1$

$\therefore 2x = 6$

$\therefore x = \frac{6}{2} = 3$ cm.

7 $\left(\frac{1+5}{2}, \frac{-6+2}{2} \right) = (3, -2)$

17 El-Menia

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 d | 3 b |
| 4 b | 5 b | 6 a |
| 7 d | 8 c | 9 c |

Second Group :

- 1 Original price : Discount rate : Price after discount
- | | | |
|-------|-------|--------|
| 100 % | : 5 % | : 95 % |
| | : 500 | : ? |
- the price after discount = $\frac{95 \times 500}{5} = 9,500$ LE

x	f	$x \cdot f$
5	4	20
15	5	75
25	6	150
35	3	105
45	2	90
The sum	20	440

$$\text{The mean} = \frac{\sum (x \cdot f)}{\sum f} = \frac{440}{20} = 22$$

3 [a] $\therefore M$ is midpoint of $\overline{AC}$

$$\therefore M = \left(\frac{-4+9}{2}, \frac{2+1}{2} \right) = (2.5, 1.5)$$

[b] Let the point $D(x, y)$

$\therefore M$ is midpoint of $\overline{BD}$

$$\therefore \left(\frac{4+x}{2}, \frac{-2+y}{2} \right) = (2.5, 1.5)$$

$$\frac{4+x}{2} = 2.5 \quad \therefore 4+x=5$$

$$\therefore x = 5 - 4 = 1$$

$$\frac{-2+y}{2} = 1.5 \quad \therefore -2+y=3$$

$$\therefore y = 3 + 2 = 5 \quad \therefore D = (1, 5)$$

$$4 \quad \frac{1}{2}x + 4 = 7 \quad \therefore \frac{1}{2}x = 7 - 4 = 3$$

$$\therefore x = 3 \times 2 = 6$$

$\therefore$ The solution set = $\{6\}$

$$5 \quad \frac{5}{9}(4 + 6 - 10) = \frac{5}{9} \times 0 = 0$$

6 $\therefore ABCD$ is a quadrilateral

$\therefore$ the sum of measures of its interior angles = 360°

$$\therefore 66 + x + 90 + 3x = 360$$

$$\therefore 4x + 156 = 360$$

$$\therefore 4x = 360 - 156 = 204$$

$$\therefore x = \frac{204}{4} = 51$$

$$7 \quad \therefore m(\angle BMD) + m(\angle BMC) + m(\angle DMC) = 360^\circ$$

$$\therefore m(\angle BMD) = 360^\circ - (120^\circ + 90^\circ) = 150^\circ$$

$\therefore \overline{BA} \parallel \overline{MD}$, $\overline{BM}$ is a transversal.

$$\therefore m(\angle B) + m(\angle BMD) = 180^\circ$$

(Two interior angles in the same side of transversal)

$$\therefore m(\angle B) = 180^\circ - 150^\circ = 30^\circ$$

First Group :

1 a

2 a

3 b

4 a

5 d

6 d

7 b

8 d

9 a

Second Group :

$$1 \quad \text{Scale drawing} = \frac{\text{distance on the map}}{\text{real distance}}$$

$$\frac{1}{2,000,000} = \frac{5}{\text{real distance}}$$

$$\text{the real distance} = 5 \times 2,000,000 = 10,000,000 \text{ cm} \\ = 100 \text{ km}$$

$$2 \quad [a] A \cup B = \{1, 2, 3, 4, 8\}$$

$$[b] A \cap B = \{1, 2\}$$

$$3 \quad 2x - 3 = 5$$

$$2x = 5 + 3$$

$$2x = 8$$

$$x = \frac{8}{2} = 4$$

the solution set = $\{4\}$

4 $\therefore ABCD$ is a quadrilateral.

$\therefore$ the sum of measures of its interior angles = 360°

$$\therefore 60 + x + 90 + 2x = 360 \quad \therefore 3x + 150 = 360$$

$$\therefore 3x = 360 - 150 = 210 \quad \therefore x = \frac{210}{3} = 70$$

5 $\therefore \overline{CA} \parallel \overline{BE}$, $\overline{AB}$ is a transversal.

$$\therefore m(\angle BAC) = m(\angle B) = 60^\circ$$

(alternating interior angles)

$$\therefore m(\angle C) + m(\angle BAC) = 60^\circ + 120^\circ = 180^\circ$$

and they are two interior angles in the same side of the transversal.

$$\therefore \overline{AB} \parallel \overline{CD}$$

6 In $\triangle BCE$:

$$\therefore m(\angle B) = 180^\circ - (70^\circ + 50^\circ) = 60^\circ$$

$$\therefore m(\angle B) + m(\angle A) = 60^\circ + 120^\circ = 180^\circ$$

and they are two interior angles in the same side of the transversal

$$\therefore \overline{BC} \parallel \overline{AD} \quad (1)$$

$$\therefore m(\angle A) + m(\angle D) = 120^\circ + 60^\circ = 180^\circ$$

and they are two interior angles in the same side of the transversal

$$\therefore \overline{AB} \parallel \overline{DC} \quad (2)$$

From (1) and (2) : $\therefore ABCD$ is a parallelogram

7 [a] the mode = 42

[b] the median = 42

[c] the range = $54 - 38 = 16$

19 Luxor

First Group :

- | | | |
|-----|-----|-----|
| 1 b | 2 c | 3 b |
| 4 a | 5 c | 6 d |
| 7 a | 8 b | 9 d |

Second Group :

- 1 $\therefore A(-3, 4k - 8)$ lies on the x -axis
 $\therefore$ the y -coordinate = 0
 $\therefore 4k - 8 = 0 \quad \therefore 4k = 8 \quad \therefore k = \frac{8}{4} = 2$
 $\therefore B = (k - 9, -3k) = (2 - 9, -3 \times 2) = (-7, -6)$
 $\therefore B$ lies in the third quadrant
- 2 mode = 42
 $\therefore$ median = 42
- 3 $a + 3b + 12$
- 4 ABCD is a rhombus, $\overline{BD}$ is a diagonal
 $\therefore m(\angle ABD) = m(\angle DBC) = 62^\circ$
 $\therefore m(\angle ABC) = 2 \times 62^\circ = 124^\circ$
 $\therefore m(\angle C) = 180^\circ - 124^\circ = 56^\circ$
- 5 Original price : Discount rate : Price after discount

100 %	:	10 %	:	90 %
	:	800	:	?

the price after discount = $\frac{800 \times 90}{100} = 7,200$ LE
- 6 Scale drawing = $\frac{\text{distance on the map}}{\text{real distance}}$
 $\frac{1}{1,000,000} = \frac{5}{\text{real distance}}$
the real distance = $5 \times 1,000,000 = 5,000,000$ cm
= 50 km
- 7 $\therefore \overline{AB} \parallel \overline{CD}$, $\overline{AC}$ is a transversal.
 $\therefore m(\angle A) + m(\angle ACD) = 180^\circ$
(two interior angles in the same side of the transversal)
 $\therefore m(\angle ACD) = 180^\circ - 60^\circ = 120^\circ$ (1)
 $\therefore \overline{CD} \parallel \overline{EF}$, $\overline{CE}$ is a transversal.
 $\therefore m(\angle E) + m(\angle DCE) = 180^\circ$
(two interior angles in the same side of the transversal)
 $\therefore m(\angle DCE) = 180^\circ - 35^\circ = 145^\circ$ (2)
 $\therefore m(\angle ACE) + m(\angle ACD) + m(\angle DCE) = 360^\circ$
 $\therefore m(\angle ACE) = 360^\circ - (120^\circ + 145^\circ) = 95^\circ$
 $\therefore x = 95$

20

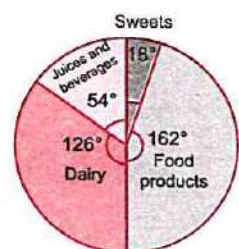
Aswan

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 c | 3 a |
| 4 b | 5 c | 6 b |
| 7 b | 8 a | 9 d |

Second Group :

- 1 $4a - 3$
- 2 $(x + y) \div z = \left(\frac{1}{2} + \frac{2}{5}\right) \div \frac{3}{10} = \left(\frac{5}{10} + \frac{4}{10}\right) \times \frac{10}{3}$
 $= \frac{9}{10} \times \frac{10}{3} = 3$
- 3 Scale drawing = $\frac{\text{Length in drawing}}{\text{real length}}$
 $\frac{1}{10,000} = \frac{\text{Length in drawing}}{90 \times 100}$
length in drawing = $\frac{90 \times 100}{10,000} = 0.9$ cm.
- 4 $\therefore M = \left(\frac{x+2}{2} + \frac{y+5}{2}\right) = (4, 3)$
 $\therefore \frac{x+2}{2} = 4 \quad \therefore x+2 = 8 \quad \therefore x = 8 - 2 = 6$
 $\therefore \frac{y+5}{2} = 3 \quad \therefore y+5 = 6 \quad \therefore y = 6 - 5 = 1$
 $x + y = 6 + 1 = 7$
- 5 $\therefore$ ABCD is a quadrilateral
 $\therefore$ the sum of measures of its interior angles = 360°
 $\therefore x = 360 - (90 + 120 + 80) = 70$
- 6 In $\triangle ABC$:
 $\therefore m(\angle C) = 180^\circ - (80^\circ + 60^\circ) = 40^\circ$
 $\therefore \overline{ED} \parallel \overline{CB}$, $\overline{CE}$ is a transversal.
 $\therefore m(\angle AED) = m(\angle C) = 40^\circ$
(Corresponding angles)
- 7 The percentage of juices and Beverages
= $100\% - (45\% + 35\% + 5\%) = 15\%$
the measure of the central
angle of each sector :
Food products = $45\% \times 360^\circ$
= 162°
Dairy = $35\% \times 360^\circ = 126^\circ$
Juices and Beverages = $15\% \times 360^\circ = 54^\circ$
Sweets = $5\% \times 360^\circ = 18^\circ$



Exam 1

First Group :

Choose the correct answer from the given ones :

1 $a + a + a = \dots\dots\dots$

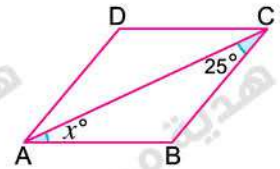
- (a) $3a^3$ (b) a^3 (c) $3 + a$ (d) $3a$

2 If a set of data has $\Sigma(f \cdot X) = 1,500$ and $\bar{X} = 20$, then what is the value of Σf ?

- (a) 75 (b) 150 (c) 3,000 (d) 30,000

3 In the opposite figure :

ABCD is a rhombus.

What is the value of X ?

- (a) 25° (b) 50°
(c) 5 cm (d) 7 cm

4 $\mathbb{Q} \cup \mathbb{Z} = \dots\dots\dots$

- (a) $\emptyset$ (b) $\mathbb{Z}$ (c) $\mathbb{N}$ (d) $\mathbb{Q}$

5 The sum of the measures of the accumulative angles at a point equals

- (a) two right angles. (b) three right angles. (c) four right angles. (d) five right angles.

6 From the opposite stem-and-leaf plot , what is the median ?

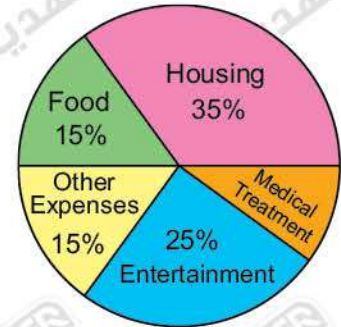
- (a) 16 (b) 17
(c) 18 (d) 20

Stems	Leaves
0	9
1	0 2 2 2 3 4 5 6 6
2	0 1 1 5 7 8 9
3	1 2 3
Key	3 1 represents 31

7 What is the projection of the point $(-3, 5)$ on the y-axis ?

- (a) $(0, 5)$ (b) $(-3, 0)$ (c) $(3, -5)$ (d) $(-3, 5)$

- 8 The following figure represents the pie chart of the expenses of a family with a monthly income of 12,000 LE, thus the amount of monthly expenses on medical treatment equals LE.



- (a) 120
(b) 1,200
(c) 2,400
(d) 3,000

- 9 Which of the following scale drawings represents a reduction ?

- (a) 70 : 1 (b) 1 : 7,000 (c) 500 : 1 (d) 7,000 : 1

Second Group :

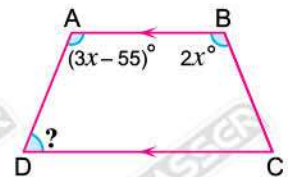
Answer the following questions :

- 1 Find the solution set of the equation in $\mathbb{Q}$: $\frac{1}{3}x + 3 = 12$

- 2 In the opposite figure :

If ABCD is a trapezoid , $m(\angle A) = m(\angle B)$

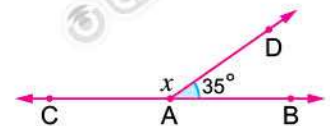
Find with proof : $m(\angle ADC)$



- 3 In the opposite figure :

If $A \in \overrightarrow{BC}$

Find : x



- 4 Divide the amount of 360 LE between Hani and Ahmed in the ratio of 7 : 5.

What is the share of each ?

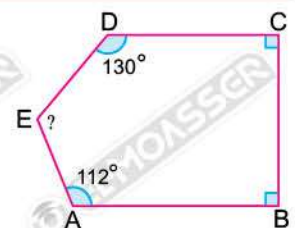
- 5 Use the distributive property to find the result of : $3 \times (-2) + 3 \times 5$

- 6 In the opposite figure :

$m(\angle EDC) = 130^\circ$, $m(\angle EAB) = 112^\circ$,

$\overline{CB} \perp \overline{AB}$, $\overline{BC} \perp \overline{CD}$

Find with proof : $m(\angle DEA)$

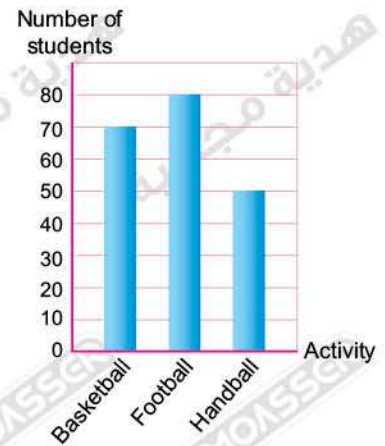


- 7 The opposite bar graph illustrates the distribution of students in summer activities according to their preferences.

Complete the following table :

Activity	Basketball	Football	Handball
Percentage	 %	 %	 %

Then represent this data using a pie chart.



Exam 2

First Group :

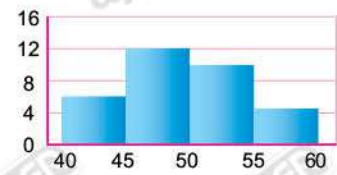
Choose the correct answer from the given ones :

1 $3 - |-3| = \dots\dots\dots$

- (a) 0 (b) 1 (c) 3 (d) 6

- 2 From the opposite histogram ,
the frequency in the interval 50 is

- (a) 12 (b) 8
(c) 10 (d) 9



- 3 Divide 120 LE between two people in the ratio of 2 : 3. What is the share of the smaller one ?

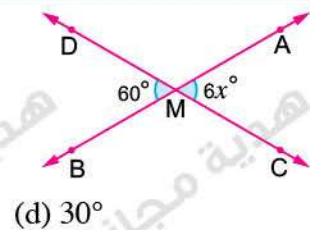
- (a) 72 LE (b) 24 LE (c) 36 LE (d) 48 LE

- 4 In the opposite figure :

$$\overline{AB} \cap \overline{DC} = \{M\}$$

What is the value of x ?

- (a) 6° (b) 60° (c) 10°



- 5 How many axes of symmetry does a regular polygon with 9 sides have ?

- (a) 9 (b) 7 (c) 18 (d) 11

- 6 The solution set in $\mathbb{Z}$ of the equation : $7 - 3x = x - 3$ is

- (a) $\emptyset$ (b) $\{2\}$ (c) $\{1\}$ (d) $\{3\}$

- 7 If the sum of the measures of two angles in a triangle equals 130° , then what is the measure of the third angle ?

(a) 20° (b) 30° (c) 50° (d) 60°

- 8 When representing the following table with a pie chart , what is the measure of the central angle that corresponds to the coffee sector ?

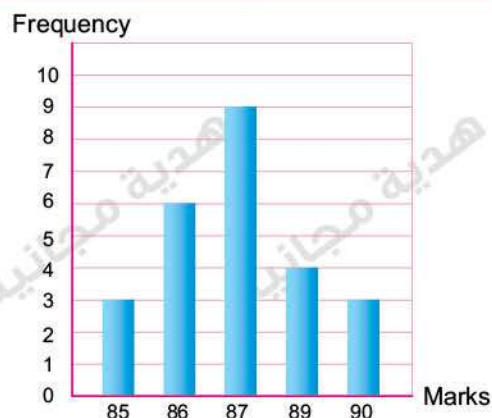
Type of drink	Coffee	Tea	Juices
Number of people	150	350	100

(a) 45° (b) 90° (c) 120° (d) 150°

- 9 The opposite figure shows the marks of 25 students.

What is the arithmetic mean of the marks ?

(a) 86 (b) 87
(c) 87.2 (d) 87.5



Second Group :

Answer the following questions :

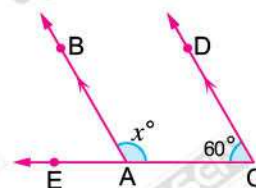
- 1 Add the two expressions $6a + 7b - 2$ and $2b + 5a$, then find the numerical value of the result when $a = 2$ and $b = 1$

- 2 Find the coordinates of the midpoint of $\overline{AB}$ where : A (2 , - 2) and B (- 6 , 8)

- 3 Use the properties of addition in $\mathbb{Z}$ to find the result of : $- 6 + (- 13) + 6$

- 4 In the opposite figure :

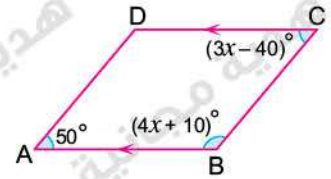
Find the value of : x



- 5 If the price of a dress is 340 LE , and during the sale a discount rate of 35 % was applied , then what is the new selling price ?

6 In the opposite figure :

Prove that : ABCD is a parallelogram.



7 If the number of people who visited one of the restaurants over a period of 11 days is :

104	131	120	115	109	124
128	118	116	120	125	

1 Complete the opposite diagram.

2 Find the mode , the median and the range.

Stems	Leaves
.....	
.....	
.....	
.....	
.....	

Key 13 | 1 represents 131

Exam 3

First Group :

Choose the correct answer from the given ones :

1 Which of the following expressions has the same result as the product $-\frac{3}{8} \times \frac{8}{3}$?

- (a) $2 \frac{1}{4} \times \frac{4}{9}$ (b) $-\frac{2}{5} \times 3 \frac{1}{2}$ (c) $-\frac{1}{4} \times (-4)$ (d) $2 \frac{1}{2} - 3.5$

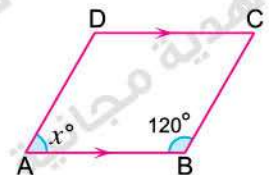
2 If L_1 , L_2 and L_3 are three lines in the same plane , $L_1 \parallel L_2$ and $L_2 \parallel L_3$, then

- (a) $L_2 \perp L_1$ (b) $L_3 \perp L_1$ (c) $L_1 \parallel L_3$ (d) $L_3 \perp L_2$

3 In the opposite figure :

What is the value of x that makes the figure ABCD a parallelogram ?

- (a) 109° (b) 120°
(c) 80° (d) 60°



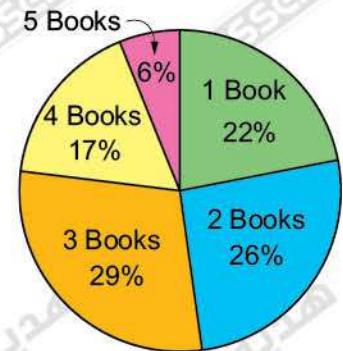
4 Which of the following charts does not show the actual data ?

- (a) Dot plot. (b) Histogram.
(c) Stem-and-leaf plot. (d) Bar graph.

- 5 If the two angles A and B are complementary and $m(\angle A) = 40^\circ$, then $m(\angle B) = \dots\dots\dots^\circ$
- (a) 40° (b) 50° (c) 90° (d) 140°

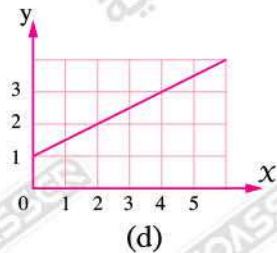
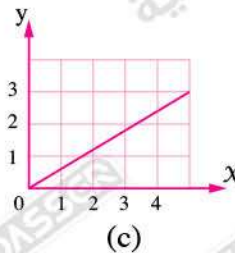
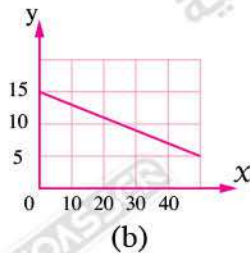
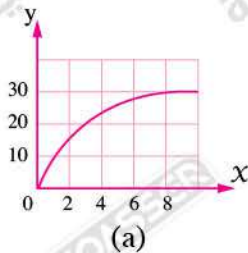
- 6 If a set of data has $\Sigma f = 10$ and $\Sigma (f \cdot X) = 40$, then what is the value of $\bar{X}$?
- (a) 4 (b) 30 (c) 50 (d) 400

- 7 The opposite pie chart shows the number of books read by 300 students in a school. How many students read fewer than 4 books?



- (a) 51 (b) 77
(c) 282 (d) 231

- 8 Which of the following graphs represents a proportion?



- 9 The additive inverse of the expression : $3X - 2y + 8$ is

- (a) $-3X - 2y + 8$ (b) $-3X + 2y + 8$
(c) $-3X + 2y - 8$ (d) $3X + 2y - 8$

Second Group :

Answer the following questions :

- 1 Find the solution set of the equation in $\mathbb{Q}$: $3(X - 5) = -18$

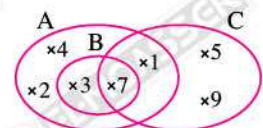
- 2 From the opposite Venn diagram , find :

1 $A \cap B$

2 $B \cup C$

3 $A \cap B \cap C$

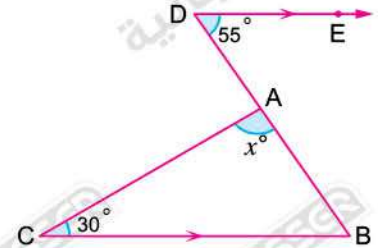
4 $A \cup (B \cap C)$



- 3 A model of the Cairo Tower was created at a scale drawing of 1 : 200. If the height of the Cairo Tower is 187 meters , what is the length of the model tower in centimeters ?

- 4 In the opposite figure :

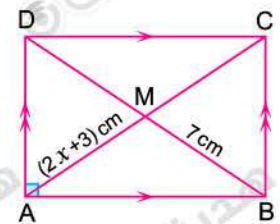
Find the value of : x



- 5 In the opposite figure :

If ABCD is a rectangle

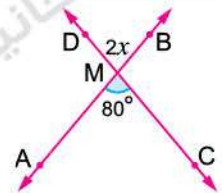
Find the value of : x



- 6 In the opposite figure :

$$\overrightarrow{AB} \cap \overrightarrow{CD} = \{M\}$$

Find the value of : x



- 7 The opposite table shows the number of minutes a group of people spend on phone calls.

Number of minutes	2	3	4	5	6
Frequency	12	20	36	20	12

Calculate the average time a person spends on one phone call.

Exam 4

First Group :

Choose the correct answer from the given ones :

- 1 Which of the following pairs of terms are like terms ?

(a) $2x$, $-2x^2$ (b) $3a$, $8a$ (c) $7x$, 7 (d) x^2 , y^2

- 2 is suitable for representing categorical data.

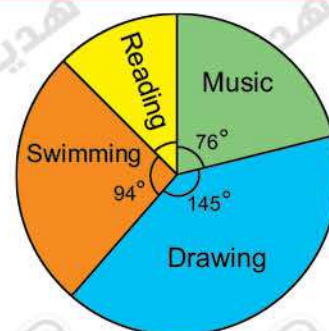
(a) Bar graph (b) Histogram
(c) Stem-and-leaf plot (d) Dot plot

- 3 The diagonals of a rhombus
- (a) are perpendicular and unequal in length.
 (b) are equal in length and not perpendicular.
 (c) are perpendicular and equal in length.
 (d) are unequal in length and not perpendicular.
-
- 4 If the price of a car increases from 240,000 LE to 300,000 LE , what is the rate of increase ?
- (a) 25 % (b) 60 % (c) 5 % (d) 30 %
-
- 5 What is the type of the angle that supplements an acute angle ?
- (a) Acute (b) Obtuse (c) Straight (d) Reflex
-
- 6 If the length of an insect is 0.3 mm and its length after magnification is 4.5 cm , then what is the magnification ratio ?
- (a) 1 : 15 (b) 15 : 1 (c) 1 : 150 (d) 150 : 1
-
- 7 If some data is organized in the opposite stem-and-leaf plot , then what is the arithmetic mean of this data ?
- | Stems | Leaves |
|------------|---------------------|
| 1 | 0 2 9 |
| 2 | 4 5 5 6 7 |
| 3 | 4 8 |
| Key | 3 4 represents 34 |
- (a) 22 (b) 23
 (c) 24 (d) 25
-
- 8 Which of the following points lies in the third quadrant ?
- (a) (− 5 , 3) (b) (3 , 4) (c) (− 2 , − 1) (d) (8 , − 6)
-

- 9 In a survey of 2,000 girls about their preferred hobby , as shown in the opposite pie chart.

Which is the most preferred hobby ?

- (a) Drawing (b) Music
 (c) Swimming (d) Reading



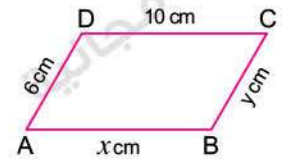
Second Group :

Answer the following questions :

- 1 If $x = \frac{3}{2}$, $y = -\frac{1}{4}$ and $z = -2$, find the value of the expression : $x - (z \div y)$

2 Find the solution set of the equation in $\mathbb{Q}$: $2x + 5 = 12 + 3x$

3 Find the value of x and y that make ABCD a parallelogram.



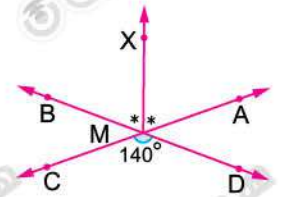
4 If the ratio among the side lengths of triangle with a perimeter of 135 cm is $7 : 5 : 3$, find the length of its longest side.

5 In the opposite figure:

$$\overrightarrow{AC} \cap \overrightarrow{BD} = \{M\},$$

$\overrightarrow{MX}$ bisects $\angle AMB$, $m(\angle CMD) = 140^\circ$

Find : $m(\angle DMX)$



6 If ABCD is a parallelogram where $A(-1, 1)$, $B(4, 2)$ and $D(1, 4)$, find the coordinates of :

- 1 The intersection point of the diagonals. 2 The vertex C

7 The following frequency table shows the daily pocket money of a student over two weeks :

Daily pocket money in LE (x)	25	29	34	39	55
Number of days (f)	3	5	3	2	1

Find the average daily pocket money of this student.

Exam 5

First Group :

Choose the correct answer from the given ones :

1 If $\frac{x}{15} = \frac{2}{5}$, then what is the value of $x + 4$?

- (a) 6 (b) 8 (c) 10 (d) 12

2 The triangle contains two angles at least.

- (a) acute (b) obtuse (c) right (d) reflex

3 If $a + \frac{6}{7} = 0$, then $a = \dots\dots\dots$

- (a) zero (b) 1 (c) $\frac{6}{7}$ (d) $-\frac{6}{7}$

4 What is the point representing the projection of the point $(-3, 5)$ on the X -axis ?

- (a) $(0, 5)$ (b) $(-3, 0)$ (c) $(3, -5)$ (d) $(-3, 5)$

5 The sum of the measures of 4 accumulative angles at a point the sum of the measures of 5 accumulative angles at a point.

- (a) = (b) > (c) < (d) $\neq$

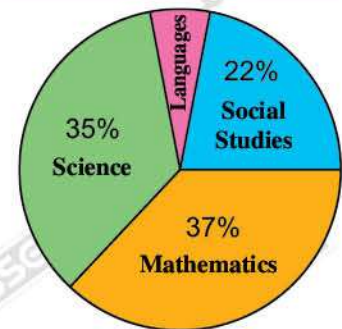
6 What is the suitable equation to find the side length of an equilateral triangle whose perimeter is 12 centimeters ?

- (a) $X + 3 = 12$ (b) $3X = 12$ (c) $2X = 12$ (d) $X = 12$

7 The opposite pie chart represents the results of a survey on a favorite subject among a group of students.

What is the percentage of the languages sector?

- (a) 6 % (b) 8 %
(c) 9 % (d) 12 %



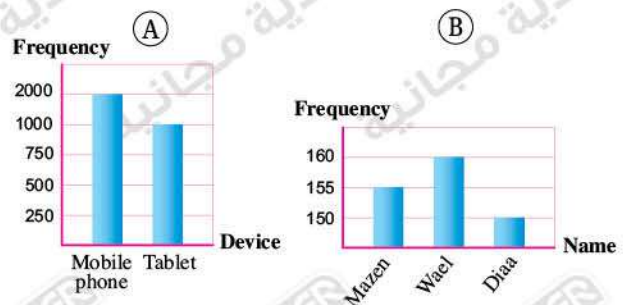
8 Four numbers, the average of the first two numbers is 25 and the average of the last two numbers is 34. What is the average of all four numbers ?

- (a) 27.5 (b) 28 (c) 29.5 (d) 30

9 One of the opposite graphs, represents the heights of three friends and the other represents the number of tablets and smartphones owned by the employees of a company.

Which of them is misleading ?

- (a) Only A is misleading. (b) Only B is misleading.
(c) Both are misleading. (d) Both are not misleading.



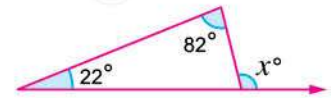
Second Group :

Answer the following questions :

- 1 Find the result of the addition: $k - 3m + l$ and $-3l + m - 7k$
- 2 Mustafa drew a picture of his brother Ahmed. If the scale drawings is $1 : 40$ and Ahmed's height is 160 cm , what is Ahmed's height in the picture?
- 3 If $A = \{5, 2, 3, 7\}$, $B = \{4, 5, 7\}$ and $C = \{7, 2\}$, find :
 - 1 $A \cap B \cap C$
 - 2 $A \cup B \cup C$
 - 3 $(A \cup B) \cap C$

- 4 In the opposite figure :

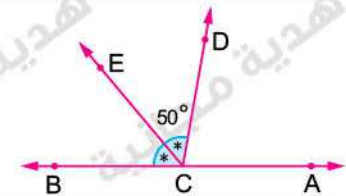
Find the value of : x



- 5 In the opposite figure :

If $C \in \overline{AB}$

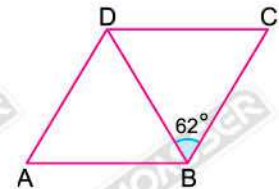
Find : $m(\angle ACD)$



- 6 In the opposite figure :

ABCD is a rhombus , $m(\angle DBC) = 62^\circ$

Find with proof : $m(\angle A)$



- 7 The following data represents the temperatures in a city over three weeks :

21	41	42	26	25	25	43	24
25	19	18	41	17	40	38	33
32	29	33	28	34			

Draw a stem-and-leaf plot , then deduce the median and mode.

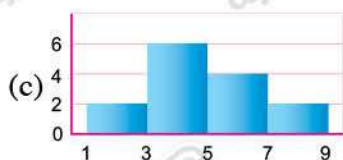
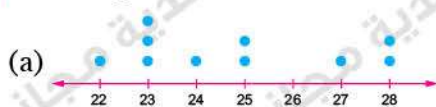
Exam 6

First Group :

Choose the correct answer from the given ones :

- 1 $5x + (-3x) = \dots\dots\dots$
 - (a) $8x$
 - (b) $2x$
 - (c) $-2x$
 - (d) $-8x$

- 2 If the range is 6 and the median is 24 , then which of the following plots satisfies this condition ?



(b) **Key** 2 | 4 represents 24

Stems	Leaves
1	9 9
2	0 1 4
3	2 2 3 5

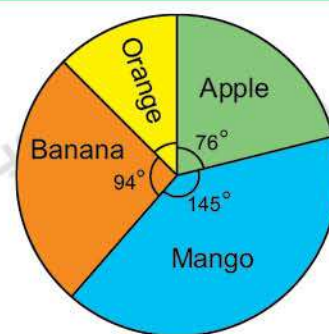


- 3 If the arithmetic mean of the numbers : X , 6 , $2X + 5$, $X - 4$, $X + 3$ is 8 , what is the value of X ?

(a) 3 (b) 4 (c) 5 (d) 6

- 4 What is the measure of the central angle corresponding to the orange sector ?

(a) 35°
(b) 45°
(c) 86°
(d) 104°



- 5 If $\{X + 1, 3\} \cup \{1, 2\} = \{1, 2, 3\}$, then X may be equals

(a) 1 (b) 5 (c) 7 (d) 8

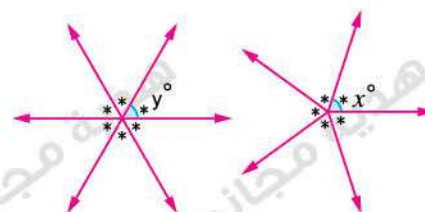
- 6 Which of the following pairs of ratios does not represent a proportion?

(a) $\frac{1}{8}$, $\frac{4}{32}$ (b) $\frac{3}{2}$, $\frac{9}{4}$ (c) $\frac{1}{5}$, $\frac{16}{80}$ (d) $\frac{9}{18}$, $\frac{21}{42}$

- 7 In the opposite figure :

$X + y = \dots\dots\dots$

(a) 72° (b) 120°
(c) 132° (d) 144°



- 8 If the origin is the midpoint of $\overline{AB}$ where A (5 , -2) , then B is

(a) (2 , 5) (b) (5 , -2) (c) (-2 , -5) (d) (-5 , 2)

- 9 Which of the following sets of numbers cannot be used as side lengths of a triangle ?

(a) 4 cm , 7 cm , 7 cm (b) 3 cm , 4 cm , 7 cm
(c) 7 cm , 7 cm , 7 cm (d) 9 cm , 7 cm , 5 cm

Second Group :

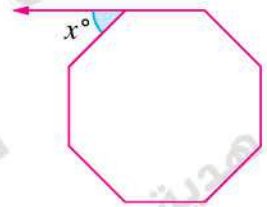
Answer the following questions :

- 1 Find the result of the subtraction : $4x - 3$ from $-x + 8$
- 2 Using the distributive property , find the value of the following in its simplest form :
 $\frac{7}{13} \times 6 + \frac{7}{13} \times 8 - \frac{7}{13}$

- 3 A man wants to divide 8,000 LE among his three sons in the ratio of 1 : 2 : 5.
Find the share of each.

- 4 In the opposite regular polygon :

Find the value of X and state
the number of axes of symmetry of the polygon.



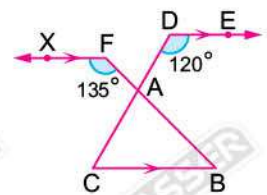
- 5 If the point A ($k + 5$, $2k + 10$) lies on the X -axis , then find the coordinates of point A.

- 6 In the opposite figure :

$\overrightarrow{DE} \parallel \overrightarrow{FX} \parallel \overrightarrow{CB}$,

$m(\angle D) = 120^\circ$, $m(\angle F) = 135^\circ$

Calculate the measures of each angle of triangle ABC.



- 7 A group of first-year preparatory students were asked about the number of hours they spend in sports each week , and the answers are shown in the opposite table.

Number of hours	8	9	10	11	12
Frequency	6	8	14	8	4

Calculate the arithmetic mean of the number of hours these students spend in sports.

Exam 7

First Group :

Choose the correct answer from the given ones :

- 1 If a set of data has $\Sigma (f \cdot X) = 80$ and $\bar{X} = 8$, then what is the value of Σf ?

(a) 8 (b) 10 (c) 20 (d) 64

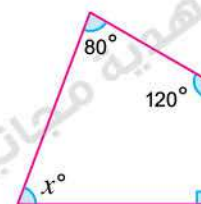
- 2 The result of adding the two expressions : $2X - 1$ and $-3X + 5$ is

(a) $-5X + 4$ (b) $4 - X$ (c) $X - 4$ (d) $X + 4$

3 In the opposite figure :

What is the value of X ?

- (a) 70° (b) 80°
(c) 90° (d) 120°



4 If the scale drawing of a map is and the distance between two cities on the map is 3 cm , then what is the real distance between them?

- (a) 30 km (b) 1,200,000 cm (c) 90 km (d) 90,000 cm

5 If the median of eight consecutive odd numbers is 22 , then what is the arithmetic mean of the largest two numbers ?

- (a) 25 (b) 26 (c) 28 (d) 29

6 If $A = \{8, 9, 6\}$ and $B = \{2, 6, 7\}$, then what is the set that represents $A \cup B$?

- (a) $\{6\}$ (b) $\{2, 7\}$ (c) $\{8, 9\}$ (d) $\{2, 6, 7, 8, 9\}$

7 The angle with measure of 60° has a vertically opposite angle with a measure of

- (a) 30° (b) 60° (c) 90° (d) 180°

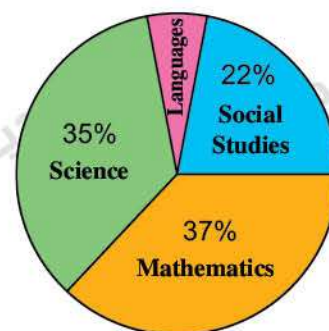
8 Which of the following points does not lie on the y-axis ?

- (a) $(0, -5)$ (b) $(3, 0)$ (c) $(0, 0)$ (d) $(0, 2)$

9 The opposite pie chart represents the results of a survey on a favorite subject among a group of students , and among them 700 students prefer science.

What is the total number of students included in the survey ?

- (a) 210 (b) 700
(c) 1,400 (d) 2,000



Second Group :

Answer the following questions :

1 If $M(X, 0)$ is the midpoint of $\overline{AB}$, find X and y when $A(1, -5)$ and $B(2, y)$

2 In the opposite figure :

Are $\overrightarrow{OA}$ and $\overrightarrow{OB}$ collinear ? And why ?



3 Find the solution set of the equation in $\mathbb{Q}$:

$$3(X - 1) + 4 = 3$$

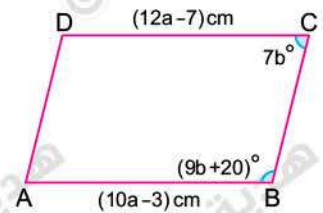
4 Using the properties of addition in $\mathbb{Q}$, find in the simplest form : $\frac{5}{8} + \left(-\frac{3}{4}\right) + \frac{3}{8} + \frac{3}{4}$

5 If a TV price after deduction rate of 16 % is 12,600 LE , what is the TV price before deduction ?

6 In the opposite figure :

Prove that : the shape ABCD is a parallelogram

when $a = 2$ and $b = 10$



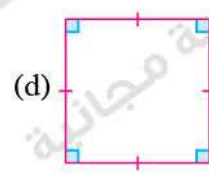
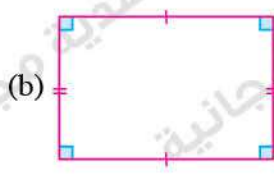
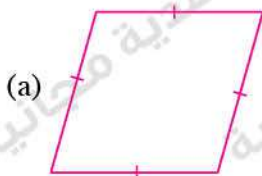
7 Online retail sales are growing rapidly. The highest online retail sales categories are 50% for travel , 20% for clothes and footwear , 15% for computer device and software , 10% for automobiles and spare parts , and 5% for home furnishings , draw a pie chart to represent the online sales.

Exam 8

First Group :

Choose the correct answer from the given ones :

1 Which of the following shapes does not have an axes of symmetry ?



2 If $4(X + 2) = 12$, and the substitution set is $\{2, 3, 4\}$, then the solution set =

(a) $\{1\}$

(b) $\{2\}$

(c) $\{3\}$

(d) $\emptyset$

3 The sum of the lengths of any two sides in a triangle the length of the third side.

(a) is less than

(b) is greater than

(c) is equal to

(d) is half

- 4 A man divided an amount of money between his two sons in the ratio of 4 : 3. If the difference between the elder brother's share and the younger brother's share is 5,000 LE, then what is the elder brother's share ?

(a) 15,000 LE. (b) 20,000 LE. (c) 5,000 LE. (d) 35,000 LE.

- 5 If $A = \{5, 7\}$, then what is the number of all subsets of set A ?

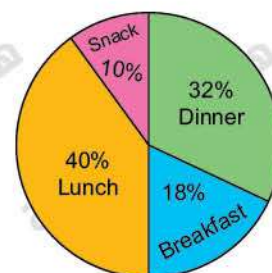
(a) 2 (b) 4 (c) 6 (d) 8

- 6 If $m(\angle A) = m(\angle B)$, and $\angle A$ supplements $\angle B$, then what is the measure of $\angle B$?

(a) 30° (b) 45° (c) 60° (d) 90°

- 7 The opposite pie chart shows the percentage of calories that Sally consumed during her meals today. If Sally consumed 2,500 calories in a day, how many calories did she consume at dinner ?

(a) 800 calories. (b) 250 calories.
(c) 450 calories. (d) 1,000 calories.



- 8 If a set of data has $\sum f = 7$ and $\sum (f \cdot X) = 35$, then what is the value of $\bar{X}$?

(a) 3 (b) 4 (c) 5 (d) 6

- 9 If the opposite stem-and-leaf plot represents the total scores of some students, then

the number of students who scored more than 270 points =

(a) 4 (b) 5
(c) 11 (d) 9

Stems	Leaves
25	3 5
26	0 1 1 3
27	2 3 4
28	8 8

Key 26 | 0 represents 260

Second Group :

Answer the following questions :

- 1 What is the increase of the expression : $7a - 8b + 4c$ than $-3a - 5c + b$?

- 2 Two complementary angles, the ratio between their measures is 5 : 7.

Find the measure of the smaller angle.

- 3 If $a = 15$ and $b = -5$, then find the result of each of the following :

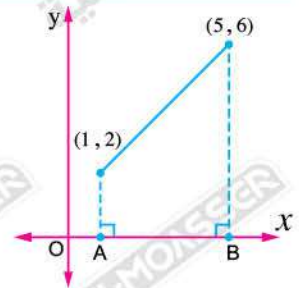
1 $|9 - a|$

2 $a - b$

3 $b - (-a)$

- 4 In the opposite figure :

What is the distance between points A and B ?



- 5 If the scale drawing on a map is 1:4,000,000 and the real distance between two cities is 350 km, find the distance between the two cities on the map.

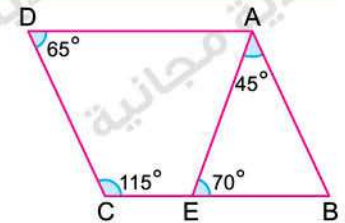
- 6 In the opposite figure :

$E \in \overline{BC}$, $m(\angle EAB) = 45^\circ$

$m(\angle AEB) = 70^\circ$, $m(\angle C) = 115^\circ$

$m(\angle D) = 65^\circ$

Prove that : the shape ABCD is a parallelogram.



- 7 The opposite table shows the savings of first year preparatory students at a school.

Represent these savings using a histogram.

Intervals	Frequency
1 –	6
101 –	10
201 –	18
301 –	12
401 –	8

Exam 9

First Group :

Choose the correct answer from the given ones :

- 1 If the point $(3, k - 2)$ lies on the X-axis, then what is the value of k ?

(a) -3

(b) -2

(c) 2

(d) 3

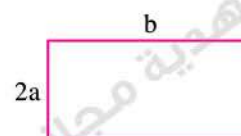
- 2 What is the algebraic expression that represents the perimeter of the opposite rectangle ?

(a) $b + 2a$

(b) $a + 2b$

(c) $4a + 2b$

(d) $2a + b$



- 3 If the price of an item reduced from 1,500 LE. to 1,200 LE. , then what is the deduction rate ?

(a) 3 %

(b) 15 %

(c) 20 %

(d) 30 %

- 4 If $\frac{x}{3} = \frac{35}{21}$, then what is the value of x ?

(a) 3

(b) 5

(c) 7

(d) 9

- 5 The diagonals of a square

(a) are perpendicular only.

(b) are equal in length only.

(c) are perpendicular and equal in length.

(d) are not equal in length and not perpendicular.

- 6 What is the measure of the angle that supplements the angle of measure $34^\circ 6'$?

(a) 55°

(b) 56°

(c) 145°

(d) 146°

- 7 In a survey of 2,000 girls about the hobby they preferred , as shown in the opposite pie chart.

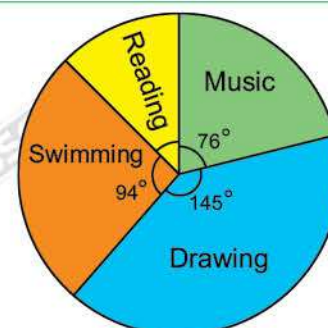
Which hobby do approximately $\frac{1}{4}$ of the girls practice?

(a) Drawing

(b) Music

(c) Swimming

(d) Reading



- 8 The arithmetic mean of the numbers : 3 , 0 , 9 , 8 and 5 is

(a) 3

(b) 4

(c) 5

(d) 9

- 9 The opposite bar graph represents the number of children in the families of first year preparatory students at a school.

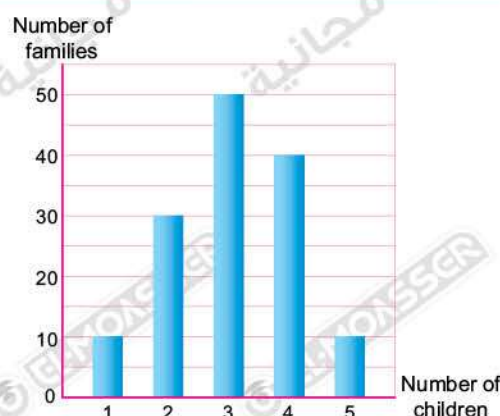
How many families have less than 5 children?

(a) 130

(b) 90

(c) 40

(d) 10



Second Group :

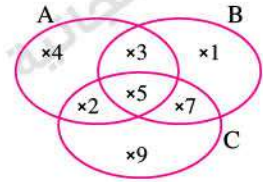
Answer the following questions :

1 From the opposite figure , find :

1 $A \cap B$

2 $A \cup C$

3 $A \cap B \cap C$



2 If a car tyre costs 3,200 LE , how much is it after adding a 10 % tax rate ?

3 Find the result of the addition : $3x - 2y + 5$ and $x + 8y - 2$

4 In the opposite figure :

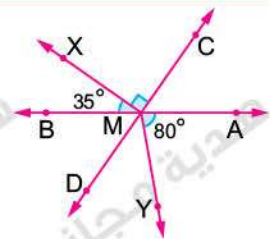
$\overrightarrow{AB} \cap \overrightarrow{CD} = \{M\}$, $m(\angle CMX) = 90^\circ$

$m(\angle XMB) = 35^\circ$, $m(\angle AMY) = 80^\circ$

Find : **1** $m(\angle AMD)$

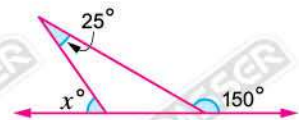
2 $m(\angle DMY)$

3 $m(\angle BMY)$



5 In the opposite figure :

Find the value of : x

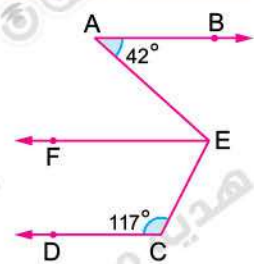


6 In the opposite figure :

$\overrightarrow{AB} \parallel \overrightarrow{CD}$, $\overrightarrow{EF} \parallel \overrightarrow{CD}$

$m(\angle C) = 117^\circ$, $m(\angle A) = 42^\circ$

Find with proof : $m(\angle AEC)$



7 The opposite table represents the number of votes received by each of Khaled, Anas, and Hamza in the class elections.

Use a pie chart to represent this data.

Student Name	Number of Votes
Khaled	8
Anas	12
Hamza	10

Exam 10

First Group :

Choose the correct answer from the given ones :

1 If $X \in \{2, 5, 8\}$, then what is the value that cannot be X ?

- (a) 2 (b) 3 (c) 5 (d) 8

2 Which of the following scale drawings represents a magnification?

- (a) 1 : 20 (b) 1 : 50,000 (c) 1 : 10 (d) 50 : 1

3 The lengths of two sides of an isosceles triangle are 3 cm and 7 cm. What is the length of the third side ?

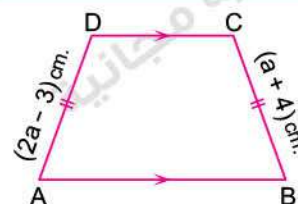
- (a) 3 cm (b) 4 cm (c) 5 cm (d) 7 cm

4 In the opposite figure :

ABCD is an isosceles trapezoid.

What is the length of $\overline{AD}$ in centimeters?

- (a) 4 (b) 6
(c) 7 (d) 11



5 If two vertically opposite angles are complementary, then the measure of each is

- (a) 180° (b) 90° (c) 50° (d) 45°

6 The sum of two consecutive numbers is 29. Which of the following equations represents that ?

- (a) $X + X + 2 = 29$ (b) $X + X + 1 = 29$
(c) $X + X - 1 = 28$ (d) $X + X + 1 = 30$

7 The median of the numbers : 25 , 15 , 7 , 18 , 17 and 30 is

- (a) 17 (b) 17.5 (c) 18 (d) 18.5

8 If the opposite stem-and-leaf plot represents the total marks of some students, then the mode =

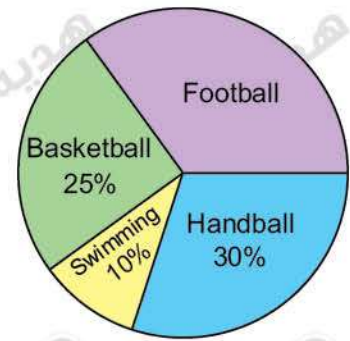
- (a) 26 (b) 260
(c) 261 (d) 263

Stems	Leaves
25	3 5
26	0 1 1 3
27	2 3 4
28	8 9

Key 26 | 0 represents 260

- 9 The opposite pie charts represents the distribution of sports activities for students in a school. If the number of students in the school is 1,200 , then the percentage of students participating in football =

- (a) 35 % (b) 25 %
(c) 40 % (d) 30 %



Second Group :

Answer the following questions :

- 1 Find the result :

1 $-3.2 + (-1.3)$

2 $35\% \times \left(-\frac{13}{14}\right)$

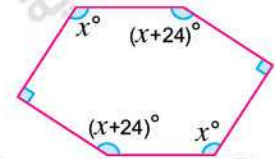
3 $-\frac{1}{6} \div \frac{5}{2}$

- 2 A picture of a tree is drawn to scale drawing of 1 : 100. If the real height of the tree is 8 meters, find the height of the tree in the picture.

- 3 Find the solution set of the equation in $\mathbb{Z}$: $4 - 3x = 19$

- 4 In the opposite figure :

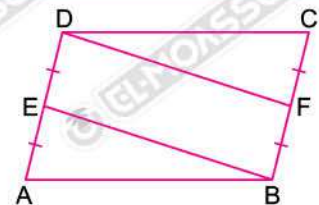
Find the value of : x



- 5 In the opposite figure :

ABCD is a parallelogram , E is the midpoint of $\overline{AD}$
, F is the midpoint of $\overline{CB}$

Prove that : EBFD is a parallelogram.



- 6 Draw in the coordinate plane $\overline{AB}$ where A (5 , 6) and B (3 , 2) , then identify on the drawing :

- 1 The projection of $\overline{AB}$ on the x -axis
2 The projection of $\overline{AB}$ on the y -axis , then find the length of each projection.

- 7 The following table shows the number of working hours of a group of workers :

Number of Hours (x)	5	6	7	8	9	10
Number of Workers (f)	12	n	30	39	16	9

Find the number of workers who work 6 hours such that the arithmetic mean of the number of working hours is 7.5.

Exam 1

First Group :

- | | | |
|-----|-----|-----|
| 1 d | 2 a | 3 a |
| 4 d | 5 c | 6 c |
| 7 a | 8 b | 9 b |

Second Group :

1

$$\frac{1}{3}x + 3 = 12$$

$$\frac{1}{3}x = 12 - 3$$

$$\frac{1}{3}x = 9$$

$$x = 9 \div \frac{1}{3} = 9 \times 3$$

$$x = 27$$

$\therefore$ The solution set = $\{27\}$

2

$$\therefore m(\angle A) = m(\angle B) \quad \therefore 3x - 55^\circ = 2x$$

$$\therefore 3x - 2x = 55^\circ \quad \therefore x = 55^\circ$$

$$\therefore m(\angle A) = 3 \times 55^\circ - 55^\circ = 165^\circ - 55^\circ = 110^\circ$$

$\therefore \overline{AB} \parallel \overline{CD}$, $\overline{AD}$ is a transversal

$$\therefore m(\angle D) + m(\angle A) = 180^\circ$$

(two interior angles on the same side of the transversal)

$$\therefore m(\angle D) = 180^\circ - 110^\circ = 70^\circ$$

3

$$\therefore A \in \overline{BC}$$

$$\therefore m(\angle BAD) + m(\angle DAC) = 180^\circ$$

$$\therefore 35^\circ + x = 180^\circ \quad \therefore x = 180^\circ - 35^\circ = 145^\circ$$

4

Hani	:	Ahmed	:	Total
7	:	5	:	12
?	:	?	:	360

$$\text{Hani's share} = \frac{360 \times 7}{12} = 210 \text{ LE.}$$

$$\text{Ahmad's share} = \frac{360 \times 5}{12} = 150 \text{ LE.}$$

5

$$3 \times (-2) + 3 \times 5 = 3 \times (-2 + 5) = 3 \times 3 = 9$$

6

$\therefore$ ABCDE is a pentagon

$\therefore$ The sum of the measures of its interior angles
 $= 3 \times 180^\circ = 540^\circ$

$$\therefore \overline{BC} \perp \overline{CD} \quad \therefore m(\angle C) = 90^\circ$$

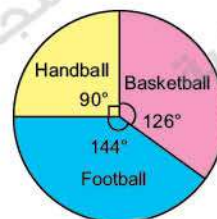
$$\therefore \overline{CB} \perp \overline{AB} \quad \therefore m(\angle B) = 90^\circ$$

$$\therefore m(\angle DEA) = 540^\circ - (130^\circ + 112^\circ + 90^\circ + 90^\circ) = 118^\circ$$

7

Total number of students = $50 + 80 + 70 = 200$ students

Activity	Basketball	Football	Handball
Percentages	$\frac{70}{200} \times 100\%$ $= 35\%$	$\frac{80}{200} \times 100\%$ $= 40\%$	$\frac{50}{200} \times 100\%$ $= 25\%$
Measure of the central angle	$360 \times 35\%$ $= 126^\circ$	$360 \times 40\%$ $= 144^\circ$	$360 \times 25\%$ $= 90^\circ$



Exam 2

First Group :

- | | | |
|-----|-----|-----|
| 1 a | 2 c | 3 d |
| 4 c | 5 a | 6 a |
| 7 c | 8 b | 9 c |

Second Group :

1

$$\begin{aligned} & 6a + 7b - 2 \\ & + 5a + 2b \\ & \hline & 11a + 9b - 2 \end{aligned}$$

The numerical value equals :

$$11(2) + 9(1) - 2 = 22 + 9 - 2 = 29$$

2

The coordinates of the midpoint of $\overline{AB}$

$$\left(\frac{2 + (-6)}{2}, \frac{-2 + 8}{2} \right) = (-2, 3)$$

3

$$\begin{aligned} & -6 + (-13) + 6 \\ & = -6 + 6 + (-13) \\ & = (-6 + 6) + (-13) \\ & = 0 + (-13) = -13 \end{aligned}$$

4

$\therefore \overrightarrow{AB} \parallel \overrightarrow{CD}$, $\overrightarrow{CA}$ is a transversal
 $\therefore m(\angle C) + m(\angle BAC) = 180^\circ$
 (two interior angles on the same side of the transversal)
 $\therefore x + 60^\circ = 180^\circ$
 $\therefore x = 180^\circ - 60^\circ = 120^\circ$

5

The value of the discount = $\frac{35}{100} \times 340 = 119$ LE.
 The new selling price = $340 - 119 = 221$ LE.

6

$\therefore \overrightarrow{DC} \parallel \overrightarrow{AB}$, $\overrightarrow{BC}$ is a transversal
 $\therefore m(\angle C) + m(\angle B) = 180^\circ$
 (two interior angles on the same side of the transversal)
 $\therefore 3x - 40^\circ + 4x + 10^\circ = 180^\circ$
 $\therefore 7x - 30^\circ = 180^\circ$
 $\therefore 7x = 180^\circ + 30^\circ = 210^\circ$
 $\therefore x = \frac{210^\circ}{7} = 30^\circ$
 $\therefore m(\angle B) = 4x + 10^\circ = 4 \times 30^\circ + 10^\circ = 130^\circ$
 $\therefore m(\angle A) + m(\angle B) = 50^\circ + 130^\circ = 180^\circ$
 They are two interior angles on the same side of the transversal
 $\therefore \overrightarrow{AD} \parallel \overrightarrow{BC}$
 $\therefore \overrightarrow{AB} \parallel \overrightarrow{CD}$
 $\therefore$ ABCD parallelogram

7

Stems	Leaves
10	4 9
11	5 6 8
12	0 0 4 5 8
13	1

Key 11 | 5 means 115

2

The mode = 120
 The median = 120
 The range equals :
 $131 - 104 = 27$

Exam 3

First Group :

- | | | |
|-----|-----|-----|
| 1 d | 2 c | 3 d |
| 4 b | 5 b | 6 a |
| 7 d | 8 c | 9 c |

Second Group :

1

$$\begin{aligned} 3(x - 5) &= -18 \\ (x - 5) &= \frac{-18}{3} \\ x - 5 &= -6 \\ x &= -6 + 5 \\ x &= -1 \end{aligned}$$

$\therefore$ The solution set = $\{-1\}$

2

- 1 $A \cap B = \{3, 7\}$
- 2 $B \cup C = \{1, 3, 5, 7, 9\}$
- 3 $A \cap B \cap C = \{7\}$
- 4 $A \cup \{B \cap C\} = \{1, 2, 3, 4, 7\} \cup \{1, 7\}$
 $= \{1, 2, 3, 4, 7\}$

3

$$\begin{aligned} \text{Scale drawing} &= \frac{\text{length in drawing}}{\text{real length}} \\ \frac{1}{200} &= \frac{\text{length in drawing}}{187 \times 100} \\ \text{Length in drawing} &= \frac{18,700 \times 1}{200} = 93.5 \text{ cm} \end{aligned}$$

4

$\therefore \overrightarrow{DE} \parallel \overrightarrow{CB}$, $\overrightarrow{DB}$ is a transversal
 $\therefore m(\angle D) = m(\angle B) = 55^\circ$ (alternating interior angles)
 In $\triangle ABC$:
 $\therefore m(\angle BAC) = 180^\circ - (55^\circ + 30^\circ) = 95^\circ$
 $\therefore x = 95^\circ$

5

$\therefore$ ABCD is rectangle $\therefore MA = MB$
 $\therefore 2x + 3 = 7$
 $\therefore 2x = 7 - 3$
 $\therefore 2x = 4$
 $\therefore x = \frac{4}{2} = 2$

6

$$\therefore \overline{AB} \cap \overline{CD} = \{M\}$$

$$\therefore m(\angle BMD) = m(\angle AMC) \text{ (vertically opposite angles)}$$

$$\therefore 2x = 80^\circ$$

$$\therefore x = \frac{80^\circ}{2} = 40^\circ$$

7

Number of minutes x	Frequency f	$f \cdot x$
2	12	24
3	20	60
4	36	144
5	20	100
6	12	72
Total	100	400

Average time a person spends in a phone call

$$= \frac{400}{100} = 4 \text{ minutes.}$$

Exam 4

First Group :

1 b

2 a

3 a

4 a

5 b

6 d

7 c

8 c

9 a

Second Group :

1

$$\begin{aligned} x - (z \div y) &= \frac{3}{2} - \left(-2 \div \frac{-1}{4}\right) \\ &= \frac{3}{2} - \left(\frac{-2}{1} \times \frac{-4}{1}\right) = \frac{3}{2} - (8) \\ &= \frac{3}{2} - \frac{16}{2} = -\frac{13}{2} = -6 \frac{1}{2} \end{aligned}$$

2

$$2x + 5 = 12 + 3x$$

$$2x - 3x = 12 - 5$$

$$-x = 7$$

$$x = -7$$

$$\therefore \text{The solution set} = \{-7\}$$

3

For ABCD to be a parallelogram

$$AB = CD \quad \therefore x = 10$$

$$BC = AD \quad \therefore y = 6$$

4

First side : Second side : Third side : Sum

$$7 : 5 : 3 : 15$$

$$? : ? : ? : 135$$

$$\text{The length of the longest side} = \frac{7 \times 135}{15} = 63 \text{ cm}$$

5

$$m(\angle AMD) = 180^\circ - 140^\circ = 40^\circ$$

$$\therefore m(\angle CMD) = m(\angle BMA) \text{ (vertically opposite angles)}$$

$$\therefore m(\angle BMA) = 140^\circ$$

$$\therefore \overline{MX} \text{ bisects } \angle AMB$$

$$\therefore m(\angle AMX) = m(\angle BMX) = 140^\circ \div 2 = 70^\circ$$

$$\begin{aligned} \therefore m(\angle DMX) &= m(\angle AMX) + (\angle AMD) \\ &= 70^\circ + 40^\circ = 110^\circ \end{aligned}$$

6

1 The coordinates of the intersection point of its diagonals

$$\left(\frac{4+1}{2}, \frac{2+4}{2}\right) = (2.5, 3)$$

2 Assuming the coordinates of the vertex C (x, y)

$$\therefore \left(\frac{-1+x}{2}, \frac{1+y}{2}\right) = (2.5, 3)$$

$$\therefore \frac{-1+x}{2} = 2.5$$

$$\therefore -1 + x = 5$$

$$\therefore x = 6$$

$$\therefore \frac{1+y}{2} = 3$$

$$\therefore 1 + y = 6$$

$$\therefore y = 5$$

$$\therefore C(6, 5)$$

7

Daily pocket money in LE (x)	Number of days (f)	$f \cdot x$
25	3	75
29	5	145
34	3	102
39	2	78
55	1	55
Total	14	455

$$\text{The average daily pocket money} = \frac{455}{14} = 32.5 \text{ LE}$$

Exam 5

First Group :

1 c

2 a

3 d

4 b

5 a

6 b

7 a

8 c

9 a

Second Group :

1

$$\begin{array}{r} k - 3m + l \\ + -7k + m - 3l \\ \hline -6k - 2m - 2l \end{array}$$

2

$$\text{Scale drawing} = \frac{\text{length in drawing}}{\text{real length}}$$

$$\frac{\text{length in drawing}}{160} = \frac{1}{40}$$

$$\text{Length in drawing} = \frac{160 \times 1}{40} = 4 \text{ cm}$$

3

$$1 \quad A \cap B \cap C = \{7\}$$

$$2 \quad A \cup B \cup C = \{2, 3, 4, 5, 7\}$$

$$3 \quad (A \cup B) \cap C = \{2, 3, 4, 5, 7\} \cap \{7, 2\} = \{7, 2\}$$

4

$$X = 22^\circ + 82^\circ = 104^\circ \text{ (exterior angle)}$$

5

$$\therefore m(\angle BCE) = m(\angle ECD) = 50^\circ$$

$$\therefore m(\angle ACD) = 180^\circ - (50^\circ + 50^\circ) = 80^\circ$$

6

$\therefore$ ABCD is a rhombus, $\overline{BD}$ is a diagonal in the rhombus.

$$\therefore m(\angle ABD) = m(\angle DBC) = 62^\circ$$

$$\therefore m(\angle ABC) = 2 \times 62^\circ = 124^\circ$$

$$\therefore m(\angle A) = 180^\circ - 124^\circ = 56^\circ$$

7

$$\text{Median} = 29$$

$$\text{Mode} = 25$$

Stems	Leaves
1	7 8 9
2	1 4 5 5 5 6 8 9
3	2 3 3 4 8
4	0 1 1 2 3
Key	1 7 means 17

Exam 6

First Group :

1

b

2

d

3

d

4

b

5

a

6

b

7

c

8

d

9

b

Second Group :

1

$$\begin{array}{r} -X + 8 \\ + 4X - 3 \\ \hline -5X + 11 \end{array}$$

$$2 \quad \frac{7}{13} (6 + 8 - 1) = \frac{7}{13} \times 13 = 7$$

3

$$\text{Sum of parts} = 1 + 2 + 5 = 8$$

$$\text{Value of one part} = \frac{8,000}{8} = 1,000$$

$$\text{Share of the first} = 1 \times 1,000 = 1,000 \text{ LE}$$

$$\text{Share of the second} = 2 \times 1,000 = 2,000 \text{ LE}$$

$$\text{Share of the third} = 5 \times 1,000 = 5,000 \text{ LE}$$

4

$\therefore$ The polygon is a regular octagon.

$$\therefore \text{Measure of each of its interior angle} = \frac{6 \times 180^\circ}{8} = 135^\circ$$

$$\therefore X = 180^\circ - 135^\circ = 45^\circ$$

Number of axes of symmetry = 8 axes.

5

$\therefore$ The point A lies on the X-axis

$\therefore$ The y-coordinate equals 0

$$\therefore 2k + 10 = 0 \quad \therefore 2k = -10 \quad \therefore k = -5$$

By substituting the value of k, the point is (0, 0)

6

$\therefore \overline{DE} \parallel \overline{CB}$, $\overleftrightarrow{DC}$ is a transversal

$$\therefore m(\angle D) + m(\angle C) = 180^\circ$$

(two interior angles on the same side of the transversal)

$$\therefore m(\angle C) = 180^\circ - 120^\circ = 60^\circ$$

$\therefore \overline{CB} \parallel \overline{FX}$, $\overleftrightarrow{FB}$ is a transversal

$$\therefore m(\angle F) + m(\angle B) = 180^\circ$$

(two interior angles on the same side of the transversal)

$$\therefore m(\angle B) = 180^\circ - 135^\circ = 45^\circ$$

In triangle ABC:

$$\therefore m(\angle BAC) = 180^\circ - (60^\circ + 45^\circ) = 75^\circ$$

7

Number of hours X	Frequency f	$f \cdot X$
8	6	48
9	8	72
10	14	140
11	8	88
12	4	48
Total	40	396

The arithmetic mean of the number of hours

$$= \frac{396}{40} = 9.9 \text{ hours.}$$

Exam 7

First Group :

- | | | |
|-----|-----|-----|
| 1 b | 2 b | 3 a |
| 4 c | 5 c | 6 d |
| 7 b | 8 b | 9 d |

Second Group :

1

$\therefore M$ is the midpoint of $\overline{AB}$

$$\therefore \left(\frac{1+2}{2}, \frac{-5+y}{2} \right) = (x, 0)$$

$$\therefore x = \frac{3}{2}$$

$$\therefore \frac{-5+y}{2} = 0$$

$$-5 + y = 0$$

$$\therefore y = 5$$

2

Yes, $\overrightarrow{OA}$ and $\overrightarrow{OB}$ are collinear.

$$\text{Because : } m(\angle AOC) + m(\angle COB) = 36^\circ + 144^\circ = 180^\circ$$

3

$$3(x - 1) + 4 = 3$$

$$3x - 3 + 4 = 3$$

$$3x + 1 = 3$$

$$3x = 3 - 1$$

$$3x = 2$$

$$x = \frac{2}{3}$$

$$\therefore \text{The solution set} = \left\{ \frac{2}{3} \right\}$$

4

$$\frac{5}{8} + \left(\frac{-3}{4} \right) + \frac{3}{8} + \frac{3}{4}$$

$$= \frac{5}{8} + \frac{3}{8} + \left(\frac{-3}{4} \right) + \frac{3}{4}$$

$$= \left[\frac{5}{8} + \frac{3}{8} \right] + \left[\frac{-3}{4} + \frac{3}{4} \right]$$

$$= 1 + 0 = 1$$

5

Original price : Discount rate : Price after discount

$$100 \% : 16 \% : 84 \%$$

$$? : : 12,600$$

$$\text{Original price of the device} = \frac{12,600 \times 100}{84} = 15,000 \text{ LE}$$

6

When $a = 2$

$$DC = 12a - 7 = 12 \times 2 - 7 = 17 \text{ cm}$$

$$\therefore AB = 10a - 3 = 10 \times 2 - 3 = 17 \text{ cm}$$

$$\therefore AB = DC \quad (1)$$

and when $b = 10$

$$\therefore m(\angle C) = 7b = 7 \times 10^\circ = 70^\circ$$

$$\therefore m(\angle B) = 9b + 20^\circ = 9 \times 10^\circ + 20^\circ = 110^\circ$$

$$\therefore m(\angle C) + m(\angle B) = 70^\circ + 110^\circ = 180^\circ$$

and they are two interior angles on the same side of the transversal

$$\therefore \overline{AB} \parallel \overline{DC} \quad (2)$$

From (1) and (2) : $\therefore ABCD$ is a parallelogram

7

The measure of the central angle of each sector

$$\text{Travel} = 50\% \times 360^\circ = 180^\circ$$

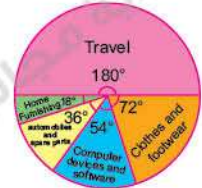
$$\begin{aligned} \text{Clothes and footwear} &= 20\% \times 360^\circ \\ &= 72^\circ \end{aligned}$$

Computer devices and software

$$= 15\% \times 360^\circ = 54^\circ$$

$$\text{Automobiles and spare parts} = 10\% \times 360^\circ = 36^\circ$$

$$\text{Home furnishings} = 5\% \times 360^\circ = 18^\circ$$



Exam 8

First Group :

- | | | |
|-----|-----|-----|
| 1 c | 2 d | 3 b |
| 4 b | 5 b | 6 d |
| 7 a | 8 c | 9 b |

Second Group :

1

$$7a - 8b + 4c$$

$$\oplus \quad \ominus \quad \oplus$$

$$-3a + b - 5c$$

$$10a - 9b + 9c$$

2

Greater angle : Smaller angle : Total

$$7 : 5 : 12$$

$$? : : 90^\circ$$

$$\text{The measure of the smaller angle} = \frac{5 \times 90^\circ}{12} = 37.5^\circ$$

3

$$1 \quad |9 - a| = |9 - 15| = |-6| = 6$$

$$2 \quad a - b = 15 - (-5) = 15 + 5 = 20$$

$$3 \quad b - (-a) = -5 - (-15) = -5 + 15 = 10$$

4

$\therefore$ A is the projection of (1, 2) on the X-axis

$\therefore$ A (1, 0)

$\therefore$ B is the projection of (5, 6) on the X-axis

$\therefore$ B (5, 0)

$\therefore$ The distance between A and B = $|5| - |1|$
= 4 length units

5

$$\text{Scale drawing} = \frac{\text{distance on the map}}{\text{real distance}}$$

$$\frac{1}{4,000,000} = \frac{\text{distance on the map}}{360 \times 100,000}$$

$$\text{The distance on the map} = \frac{1 \times 36,000,000}{4,000,000} = 9 \text{ cm}$$

6

In the triangle AEB

$$\therefore m(\angle BAE) = 45^\circ, m(\angle AEB) = 70^\circ$$

$$\therefore m(\angle B) = 180^\circ - (45^\circ + 70^\circ) = 65^\circ$$

$$\therefore m(\angle B) + m(\angle C) = 65^\circ + 115^\circ = 180^\circ$$

There are two interior angles on the same side of the transversal

$$\therefore \overline{AB} \parallel \overline{DC} \quad (1)$$

$$\therefore m(\angle D) + m(\angle C) = 65^\circ + 115^\circ = 180^\circ$$

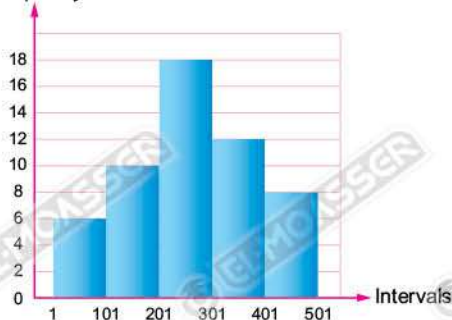
There are two interior angles on the same side of the transversal

$$\therefore \overline{AD} \parallel \overline{BC} \quad (2)$$

From (1) and (2) : $\therefore$ ABCD is a parallelogram

7

Frequency



Exam 9

First Group :

1 c

2 c

3 c

4 b

5 c

6 c

7 c

8 c

9 a

Second Group :

1

$$1 \quad A \cap B = \{3, 5\}$$

$$2 \quad A \cup C = \{2, 3, 4, 5, 7, 9\}$$

$$3 \quad A \cap B \cap C = \{5\}$$

2

$$\text{The value of the tax} = 3,200 \times \frac{10}{100} = 320 \text{ LE}$$

$$\text{The selling price} = 3,200 + 320 = 3,520 \text{ LE}$$

3

$$\begin{array}{r} 3x - 2y + 5 \\ + \quad x + 8y - 2 \\ \hline 4x + 6y + 3 \end{array}$$

4

$m(\angle AMD) = m(\angle BMC)$ (vertically opposite angles)

$$1 \quad m(\angle AMD) = 35^\circ + 90^\circ = 125^\circ$$

$$2 \quad m(\angle DMY) = 125^\circ - 80^\circ = 45^\circ$$

$$3 \quad m(\angle BMY) = 180^\circ - 80^\circ = 100^\circ$$

5

$$180^\circ - 150^\circ = 30^\circ$$

$$x = 25^\circ + 30^\circ = 55^\circ$$

(exterior angle of the triangle)

6

$$\therefore \overline{AB} \parallel \overline{CD}, \overline{EF} \parallel \overline{CD} \quad \therefore \overline{AB} \parallel \overline{CD} \parallel \overline{EF}$$

$$\therefore \overline{AB} \parallel \overline{EF}, \overline{AE} \text{ is a transversal}$$

$$\therefore m(\angle A) = m(\angle AEF) = 42^\circ$$

(alternating interior angles)

$$\therefore \overline{EF} \parallel \overline{CD}, \overline{EC} \text{ is a transversal}$$

$$\therefore m(\angle FEC) + m(\angle C) = 180^\circ$$

(two interior angles on the same side of the transversal)

$$\therefore m(\angle FEC) = 180^\circ - 117^\circ = 63^\circ$$

$$\therefore m(\angle AEC) = 42^\circ + 63^\circ = 105^\circ$$

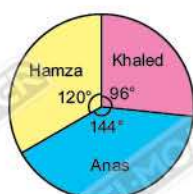
7

Total number of votes = $8 + 12 + 10 = 30$ votes

The measure of the central angle for Khaled : $\frac{8}{30} \times 360^\circ = 96^\circ$

The measure of the central angle for Anas : $\frac{12}{30} \times 360^\circ = 144^\circ$

The measure of the central angle for Hamza : $\frac{10}{30} \times 360^\circ = 120^\circ$



Exam 10

First Group :

- | | | |
|-----|-----|-----|
| 1 b | 2 d | 3 d |
| 4 d | 5 d | 6 b |
| 7 b | 8 c | 9 a |

Second Group :

1

$$1 \quad -3.2 + \left(-1 \frac{1}{3}\right) = -3 \frac{1}{5} + \left(-1 \frac{1}{3}\right) \\ = -3 \frac{3}{15} + \left(-1 \frac{5}{15}\right) = -4 \frac{8}{15}$$

$$2 \quad 35\% \times \left(\frac{-13}{14}\right) = \frac{7}{20} \times \left(\frac{-13}{14}\right) = \frac{-13}{40}$$

$$3 \quad -\frac{1}{6} \div \frac{5}{2} = \frac{-1}{6} \times \frac{2}{5} = \frac{-1}{15}$$

2

$$\text{Scale drawing} = \frac{\text{height in the picture}}{\text{real height}}$$

$$\frac{1}{100} = \frac{\text{height in the picture}}{8 \times 100}$$

$$\text{Height in the picture} = \frac{800 \times 1}{100} = 8 \text{ cm}$$

3

$$4 - 3x = 19$$

$$-3x = 19 - 4$$

$$-3x = 15$$

$$x = \frac{15}{-3} = -5$$

$$\therefore \text{The solution set} = \{-5\}$$

4

$\therefore$ The polygon is hexagon

$$\therefore (x + 24)^\circ + (x + 24)^\circ + x + x + 90^\circ + 90^\circ = 720^\circ$$

$$\therefore 4x + 228^\circ = 720^\circ$$

$$\therefore 4x = 720^\circ - 228^\circ = 492^\circ$$

$$\therefore x = \frac{492^\circ}{4} = 123^\circ$$

5

$\therefore$ ABCD is a parallelogram

$$\therefore \overline{BC} \parallel \overline{AD} \quad \therefore \overline{BF} \parallel \overline{ED} \quad (1)$$

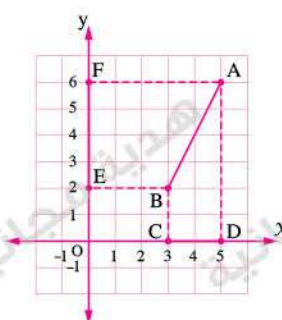
$$\therefore BC = AD \quad \therefore \frac{1}{2} BC = \frac{1}{2} AD$$

$\therefore$ E is the midpoint of $\overline{AD}$, F is the midpoint of $\overline{CB}$

$$\therefore BF = ED \quad (2)$$

From (1) and (2) : $\therefore$ EBFD is a parallelogram

6



$$1 \quad \overline{DC}, DC = 2 \text{ length units.}$$

$$2 \quad \overline{FE}, FE = 4 \text{ length units.}$$

7

No. of hours x	No. of workers f	$x \cdot f$
5	12	60
6	n	$6n$
7	30	210
8	39	312
9	16	144
10	9	90
Sum	$n + 106$	$6n + 816$

$$\bar{x} = \frac{\Sigma(f \cdot x)}{\Sigma(f)}$$

$$7.5 = \frac{6n + 816}{n + 106}$$

$$7.5n + 795 = 6n + 816$$

$$7.5n - 6n = 816 - 795$$

$$1.5n = 21$$

$$n = \frac{21}{1.5} = 14$$

The number of workers who work 6 hours is 14 workers.

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

امتحانات رقم (2)

الترم الاول



Model (1)

9

1 Choose the correct answer:

- a The mode of the values 5, 3, 8, 5, 9 is (8, 3, 5, 9)
- b The median of eight consecutive odd numbers is 22, then what is the largest number? (25, 29, 21, 27)
- c The measure of the central angle of the circular sector that represents 30% of the area of the circle? (180° , 108° , 118° , 72°)
- d Which of the following charts does not display the actual data?
(dot plot, histogram, bar graph, stem and leaf plot)
- e If $m(\angle A) = 150$, then $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$ (30, 20, 110, 210)
- f Which of the following ratios is equal to $\frac{16}{64}$? ($\frac{1}{4}$, $\frac{4}{8}$, $\frac{14}{48}$, $\frac{64}{48}$)
- g The number of diagonals in a hexagon is (6, 8, 9, 10)
- h The median of the values 5, 15, 7, 18, 17, 30 is (15, 16, 17, 18)
- i If (2, 5) is the midpoint of $\overline{AB}$, where $A(4, 1)$, then B
[(6, 5), (-2, 3), (0, 9), (2, 3)]

21

2 Answer the following:

- a In a survey of a group of people were asked their favorite sport, the results were as follows:

Sports	Handball	Basketball	Football	Volleyball
Percentage	15%	25%	45%	

Represent the survey results using a pie chart:

.....

.....

.....

- b** If ABCD is a parallelogram where $A(-1, 1)$, $B(4, 2)$ and $D(1, 4)$. Determine the coordinate of the following:

1 The point of intersection of its diagonals. **2** The vertex C.

.....

.....

- c** Given: $A = \{9, 6, 7, 10\}$, $B = \{8, 9, 10\}$

Find $A \cup B$, $A \cap B$

.....

.....

- d** Find in N the solution set of the equation $3(x - 2) - 4x = -8$

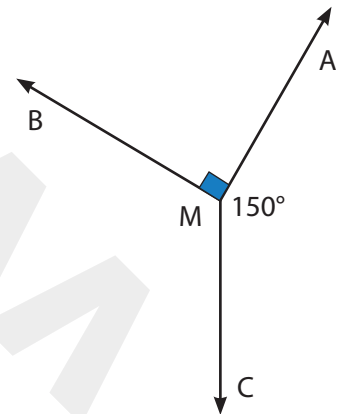
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- e** From the opposite figure, find $m(\angle BMC)$

.....

.....



- f** The ratio among the lengths of a triangle is $3 : 4 : 5$.
If its perimeter is 72 cm, what is the length of its greatest side?

.....

.....

- g** Using the properties of multiplication in Z , find the value of :

$(-4) \times (-8) \times 25 \times (-125)$

.....

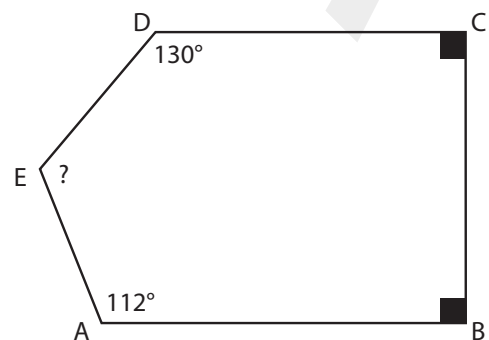
.....

1 Choose the correct answer:

- a If the mode of $a+2, a+1, a+3, a+2$ equals 12, then $a =$ (2, 6, 10, 12)
- b The arithmetic mean of the values $7-x, x-3, 8$ is (12, $2x, 4, x+4$)
- c The measure of an interior angle of a regular polygon with 8 sides is $^{\circ}$.
(108, 120, 135, 140)
- d When representing the opposite table in a pie chart, what is the measure of the central angle representing the monorail sector?
(100.8 $^{\circ}$, 172.8 $^{\circ}$, 86.4 $^{\circ}$, 24 $^{\circ}$)
- | | | | |
|-------------------|-------|-------|----------|
| Mode of transport | train | metro | monorail |
| Number of people | 700 | 1,200 | 600 |
- e For a set of values:
If $\sum f = 10$ and $\sum (f \cdot x) = 40$, then the value of $\bar{x} =$ (4, 30, 50, 400)
- f The sum of measures of the accumulative angles around the center of the circle is $^{\circ}$.
(120, 180, 90, 360)
- g The point $(-3, 5)$ lies in the quadrant. (first, second, third, fourth)
- h The projection of the point $(4, -3)$ on the y-axis is
[(0, 3), (0, -3), (4, 0), (-4, 0)]
- i If the arithmetic mean of five integers is 16, the median is 17 and the mode is 13, then the greatest of these integers is (19, 33, 1, 68)

2 Answer the following:

- a In the opposite figure:
 $m(\angle EDC) = 130^{\circ}$, $m(\angle EAB) = 112^{\circ}$
 $\overline{CB} \perp \overline{AB}$, $\overline{BC} \perp \overline{CD}$
Find with proof $m(\angle DEA)$



b If ABCD is a rhombus where A (3,5), B (12, -3) and C (13, 9), determine the coordinates of the following:

1 The intersection point of its diagonals.

2 The vertex D.

.....

.....

c Hazem bought a pair of shoes for 450 L.E after a discount rate of 10%. Find the original price of the shoes.

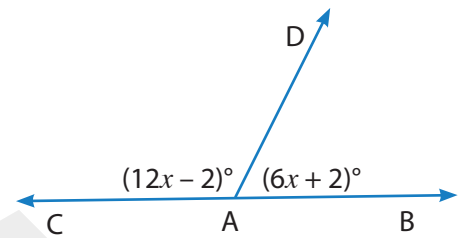
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d From the opposite figure, find the value of x .

.....

.....



e From the stem and leaf plot representing the marks of some students. Complete:

Mode =

Median =

stems	leaves
25	3 5
26	0 1 1 3
27	2 3 5
28	8 9

Key 26|0 means 260

f If the magnification ratio of an insect's image is 30 : 1 , and the insect's real length is 2.5 mm, find the length of the insect in the image in cm.

.....

.....

g A rectangle has a length 7 cm greater than its width, and its perimeter is 66 cm, find the length of the rectangle.

.....

.....

1 Choose the correct answer:

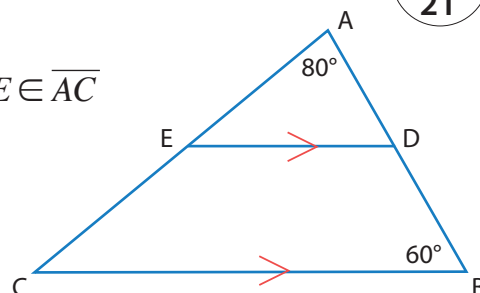
9

- a For a set of values: If $\bar{x} = 20$ and $\sum (f \cdot x) = 1,500$, what is the value of $\sum f$?
(75, 150, 3,000, 30,000)
- b The median of four consecutive even numbers is 25, what is the largest of these numbers?
(28, 26, 25, 22)
- c The measure of the central angle of the circular sector which represents 35% of the circle is °.
(35, 108, 120, 126)
- d The angle with measure 80° has a vertically opposite angle with a measure of °.
(30, 80, 90, 180)
- e The projection of the point $(-7, 3)$ on the y-axis is
[$(-7, 0)$, $(0, 3)$, $(0, 0)$, $(7, -3)$]
- f The measure of the central angle of a sector representing $\frac{1}{3}$ the area of the circle equals °.
(120, 150, 240, 90)
- g The number of axes of symmetry of a square is
(2, 3, 4, 6)
- h If $(4 - 2k, 3m + 9)$ lies on y-axis, then k equals
(7, 5, 3, 2)
- i The mode of values 5, 4, 6, 8, 4, 5, 4, 8 is
(4, 5, 8, 6)

2 Answer the following:

21

- a In the opposite figure, the triangle ABC :
 $m(\angle A) = 80^\circ$, $m(\angle B) = 60^\circ$, $D \in \overline{AB}$, $\overline{ED} \parallel \overline{CB}$, $E \in \overline{AC}$
Find $m(\angle AED)$ and $m(\angle DEC)$



.....

.....

- b** In a tennis match, a player hit 15 smashes, distributed as shown in the opposite table. Draw a pie chart for this distribution.

Set	First	Second	Third
No. of hits	7	3	5

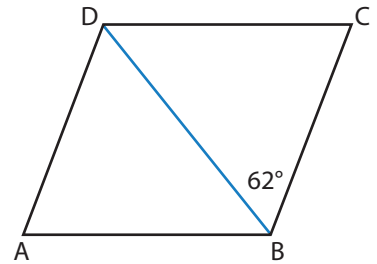
- c** Find three consecutive numbers whose sum equals 168

- d** If the length of an insect is 0.3 mm and its length after magnification is 4.5 cm, find the magnification ratio.

- e** Hany bought a refrigerator with a 10% discount. If he saved 430 L.E, what is the price of the refrigerator after the discount?

- f** Sara's mother's age now is three times Sara's age, and she is also 24 years older than Sara, how old is each of them now?

- g** In the opposite figure:
ABCD is a rhombus
 $m(\angle DBC) = 62^\circ$
find with proof $m(\angle A)$



1 Choose the correct answer:

- a For a set of value: $\bar{x} = 25$, $\sum (f \cdot x) = 6,500$, what is the value of $\sum f$?

(162,500 , 6,475 , 260 , 6,525)

- b The number of axes of symmetry of an isosceles triangle is (1 , 2 , 3 , 4)

- c The measure of the interior angle of a regular polygon with 10 sides is °.

(108 , 120 , 135 , 144)

- d The mode =

stems	leaves
1	0 1
2	0 2 2 3 9
3	4 5 5 5 7 8

Key 3|4 means 34

(2 , 5 , 22 , 35)

- e The type of angle which is supplementary to an obtuse angle is angle.

(acute , right , zero , straight)

- f The is a rhombus that has one right angle.

(square , rectangle , parallelogram , trapezium)

- g The median of the values 7 , 8 , 9 , 4 , 6 , 2 is

(5 , 6 , 6.5 , 7)

- h The projection of the point (-2 , 4) on the x-axis is

[(2 , -4) , (-2 , 0) , (2 , 0) , (0 , 4)]

- i The point A(-3 , -6) is located in quadrant.

(first , second , third , fourth)

2 Answer the following:

- a If $a = 1\frac{1}{2}$, $b = \frac{3}{4}$, $c = \frac{-2}{3}$

Find the numerical value of the expression $ac + b$

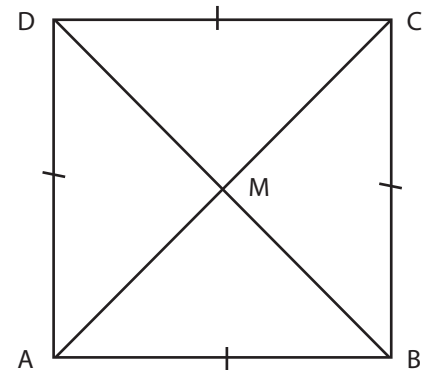
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- b** In the opposite figure:

ABCD is a square

$$BD = (5a - 4) \text{ cm}, MC = (2a - 1) \text{ cm}$$

Find the value of a , and then find the length of $\overline{AC}$.



- c** If the distance between two cities on a map is drawn at a scale of $1 : 1,000,000$ and the distance on the map is 12 cm, find the real distance in km.

- d** What is the increase of the expression $-2a - b + 5$ than $-6 + 3a - 4b$?

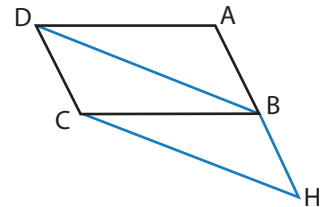
- e If the arithmetic mean of the numbers $16, n + 3, 14, 2n - 2$ is 15.25
Find the median of these numbers.

- f Write all subsets of the following set $X = \{3, 2, 7\}$, then mention their number.

- g In the opposite figure:
 $ABCD$ is a parallelogram.

$AB = BH$ where $H \in \overrightarrow{AB}$

Prove that $BHCD$ is a parallelogram.



1 Choose the correct answer:

- a For a set of values: $\sum (f \cdot x) = 56$, $\sum f = 8$, then the value of $\bar{x} = \dots\dots\dots$ (5, 64, 48, 7)
- b If the arithmetic mean of the values 18, 23, 29, $2k - 1$, k is 18, then $k = \dots\dots\dots$
(1, 7, 29, 90)
- c If $\frac{4}{x} = \frac{20}{25}$, then the value of $x = \dots\dots\dots$ (64, 16, 5, 4)
- d The solution set in Z for the equation $7 - 3x = x + 3$ is $\dots\dots\dots$ ($\{1\}$, $\{3\}$, $\{7\}$,)
- e The multiplicative inverse of $2\frac{1}{4}$ is $\dots\dots\dots$ ($\frac{9}{4}$, $\frac{4}{9}$, $\frac{2}{3}$, $\frac{3}{2}$)
- f A parallelogram with base length of 12 cm, its corresponding height is 7 cm, then its area $\dots\dots\dots \text{cm}^2$. (64, 96, 84, 112)
- g The value of the expression $4x - 10$ at $x = -1$ is $\dots\dots\dots$ (14, 6, -6, -14)
- h What is the type of angle that supplements an acute angle?
(obtuse, straight, acute, reflex)
- i The number of axes of symmetry of a parallelogram is $\dots\dots\dots$ (0, 1, 2, 4)

2 Answer the following:

- a If the point A $(-3, 2k - 4)$ lies on x-axis, determine the quadrant in which the point B $(k - 6, -3K)$ lies on.

.....

.....

- b From the opposite stem and leaf plot:

1 Write all the data

2 Find the mode, median, first quartile and third quartile.

1

2

stems	leaves
2	1 1 2
3	2 3
4	2 2 2
5	1 3 5

Key 3|2 means 3.2

- c If ABCD is a parallelogram, $m(\angle B) = (3x + 37)^\circ$, $m(\angle D) = (9x + 1)^\circ$

What is the measure of $(\angle C)$?

.....

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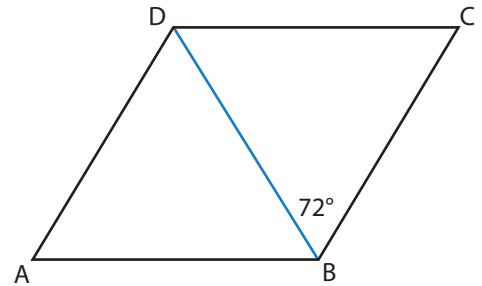
- d In the opposite figure:

ABCD is a rhombus, $m(\angle DBC) = 72^\circ$

Find $m(\angle A)$

.....

.....



- e If $\frac{k}{4} = 9$, what is the value of $\frac{1}{2}k - 7$?

.....

.....

- f If 15 % of x equals 20% of y , what is the ratio of $x : y$?

.....

.....

- g A car uses 5 liters of petrol to cover a distance of 60 km, how much petrol would the car need to cover the distance of 180 km if it travels at the same rate?

.....

.....

1 Choose the correct answer:

- a The mode of the values 5, 3, 8, 5, 9 is (8, 3, 5, 9)
- b The median of eight consecutive odd numbers is 22, then what is the largest number? (25, 29, 21, 27)
- c The measure of the central angle of the circular sector that represents 30% of the area of the circle? (180° , 108° , 118° , 72°)
- d Which of the following charts does not display the actual data?
(dot plot, histogram, bar graph, stem and leaf plot)
- e If $m(\angle A) = 150$, then $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$ (30, 20, 110, 210)
- f Which of the following ratios is equal to $\frac{16}{64}$? ($\frac{1}{4}$, $\frac{4}{8}$, $\frac{14}{48}$, $\frac{64}{48}$)
- g The number of diagonals in a hexagon is (6, 8, 9, 10)
- h The median of the values 5, 15, 7, 18, 17, 30 is (15, 16, 17, 18)
- i If (2, 5) is the midpoint of $\overline{AB}$, where $A(4, 1)$, then B
[(6, 5), (-2, 3), (0, 9), (2, 3)]

2 Answer the following:

- a In a survey of a group of people were asked their favorite sport, the results were as follows:

Sports	Handball	Basketball	Football	Volleyball
Percentage	15%	25%	45%	

Represent the survey results using a pie chart:

The percentage of Volleyball = $100\% - (15\% + 25\% + 45\%) = 15\%$

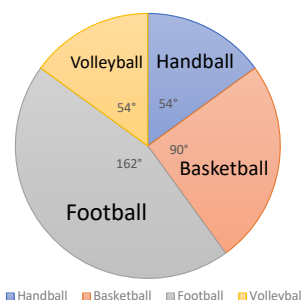
The measure of the central angle of each sector

Handball = $15\% \times 360^\circ = 54^\circ$

Basketball = $25\% \times 360^\circ = 90^\circ$

Football = $45\% \times 360^\circ = 162^\circ$

Volleyball = $15\% \times 360^\circ = 54^\circ$



- b** If ABCD is a parallelogram where A(-1 , 1) , B(4 , 2) and D(1 , 4). Determine the coordinate of the following:

- 1** The point of intersection of its diagonals. **2** The vertex C.

1) The intersection point of the two diagonals

$$= \left(\frac{4+1}{2}, \frac{2+4}{2} \right) = (2.5, 3)$$

2) Let the point C(x, y)

$$\left(\frac{-1+x}{2}, \frac{1+y}{2} \right) = (2.5, 3)$$

$$\frac{-1+x}{2} = 2.5 \quad \therefore -1+x=5 \quad \therefore x=6$$

$$\frac{1+y}{2} = 3 \quad \therefore 1+y=6 \quad \therefore y=5$$

$$C(6, 5)$$

- c** Given: A = { 9 , 6 , 7 , 10 } , B = { 8 , 9 , 10 }

Find $A \cup B$, $A \cap B$

$$A \cup B = \{ 6 , 7 , 8 , 9 , 10 \} \quad A \cap B = \{ 9 , 10 \}$$

- d** Find in N the solution set of the equation $3(x-2) - 4x = -8$

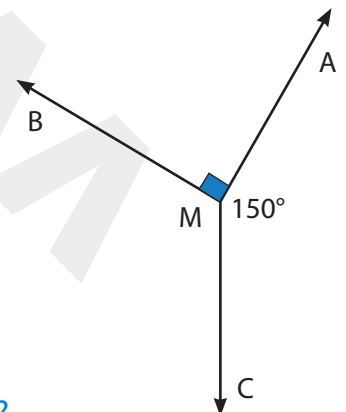
$$3(x-2) - 4x = -8 \quad 3x - 6 - 4x = -8$$

$$-6 - x = -8 \quad x = -6 + 8 = 2$$

Solution set = {2}

- e** From the opposite figure, find $m(\angle BMC)$

$$m(\angle BMC) = 360^\circ - (150^\circ + 90^\circ) = 120^\circ$$



- f** The ratio among the lengths of a triangle is 3 : 4 : 5.

If its perimeter is 72 cm, what is the length of its greatest side?

$$\text{The length of the greatest side} = \frac{72 \times 5}{12} = 30 \text{ cm}$$

- g** Using the properties of multiplication in Z , find the value of :

$$(-4) \times (-8) \times 25 \times (-125)$$

$$(-4) \times 25 \times (-8) \times (-125) \quad (\text{commutative property})$$

$$[(-4) \times 25] \times [(-8) \times (-125)] \quad (\text{associative property})$$

$$-100 \times 1000 = -100,000$$

1 Choose the correct answer:

- a If the mode of $a+2$, $a+1$, $a+3$, $a+2$ equals 12, then $a =$ (2, 6, **10**, 12)
- b The arithmetic mean of the values $7-x$, $x-3$, 8 is (12, $2x$, **4**, $x+4$)
- c The measure of an interior angle of a regular polygon with 8 sides is°. (108, 120, **135**, 140)
- d When representing the opposite table in a pie chart, what is the measure of the central angle representing the monorail sector?
- | | | | |
|-------------------|-------|-------|----------|
| Mode of transport | train | metro | monorail |
| Number of people | 700 | 1,200 | 600 |
- (100.8°, 172.8°, **86.4°**, 24°)
- e For a set of values:
If $\sum f = 10$ and $\sum (f \cdot x) = 40$, then the value of $\bar{x} =$ (4, 30, 50, 400)
- f The sum of measures of the accumulative angles around the center of the circle is°. (120, 180, 90, **360**)
- g The point $(-3, 5)$ lies in the quadrant. (first, **second**, third, fourth)
- h The projection of the point $(4, -3)$ on the y-axis is
[(0, 3), (**0**, -3), (4, 0), (-4, 0)]
- i If the arithmetic mean of five integers is 16, the median is 17 and the mode is 13, then the greatest of these integers is (19, 33, 1, 68)

2 Answer the following:

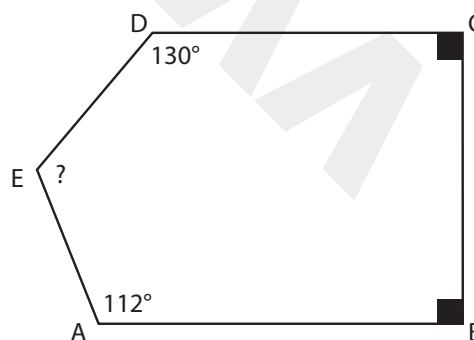
- a In the opposite figure:
 $m(\angle EDC) = 130^\circ$, $m(\angle EAB) = 112^\circ$
 $\overline{CB} \perp \overline{AB}$, $\overline{BC} \perp \overline{CD}$
Find with proof $m(\angle DEA)$

Proof:

ABCDE is a pentagon.

The sum of all interior angles $= (n - 2) \times 180^\circ = 3 \times 180^\circ = 540^\circ$ $m(\angle DEA) = 540^\circ - (90^\circ + 90^\circ + 112^\circ + 130^\circ) = 118^\circ$

- b If ABCD is a rhombus where A (3,5), B (12, -3) and C (13, 9), determine the coordinates of the following:
- 1 The intersection point of its diagonals.
 - 2 The vertex D.



- 1 The intersection point of the two diagonals:

$$= \left(\frac{3+13}{2}, \frac{5+9}{2} \right) = (8, 7)$$

- 2 Let the point D (x, y)

$$\left(\frac{12+x}{2}, \frac{-3+y}{2} \right) = (8, 7)$$

$$\frac{12+x}{2} = 8 \quad \therefore 12+x = 16 \quad \therefore x = 4$$

$$\frac{-3+y}{2} = 7 \quad \therefore -3+y = 14 \quad \therefore y = 17$$

$$D(4, 17)$$

- c Hazem bought a pair of shoes for 450 L.E after a discount rate of 10%. Find the original price of the shoes.

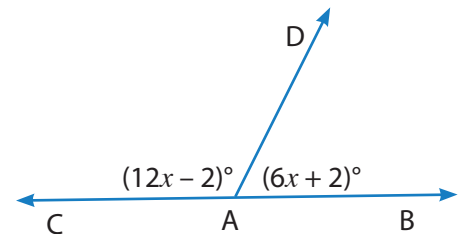
$$\text{The original price} = \frac{450 \times 100}{90} = 500 \text{ L.E}$$

- d From the opposite figure, find the value of x.

$$12x - 2^\circ + 6x + 2^\circ = 180^\circ$$

$$18x = 180^\circ$$

$$x = 10^\circ$$



- e From the stem and leaf plot representing the marks of some students. Complete:

$$\text{Mode} = 261$$

$$\text{Median} = 263$$

stems	leaves
25	3 5
26	0 1 1 3
27	2 3 5
28	8 9

Key 26|0 means 260

- f If the magnification ratio of an insect's image is 30 : 1, and the insect's real length is 2.5 mm, find the length of the insect in the image in cm.

$$\text{Scale of drawing} = \frac{\text{length in drawing}}{\text{real length}}$$

$$\frac{30}{1} = \frac{\text{length in drawing}}{2.5}$$

$$\text{Length in drawing} = \frac{30 \times 2.5}{1} = 75 \text{ mm} = 7.5 \text{ cm}$$

- g A rectangle has a length 7 cm greater than its width, and its perimeter is 66 cm, find the length of the rectangle.

$$\text{Let the width} = x \quad \text{The length} = x + 7$$

$$\text{Perimeter of a rectangle} = 2 \times (\text{length} + \text{width})$$

$$66 = 2 \times (x + 7 + x)$$

$$33 = 2x + 7$$

$$x = 13$$

$$\text{The length of the rectangle} = x + 7 = 20 \text{ cm}$$

1 Choose the correct answer:

9

- a For a set of values: If $\bar{x} = 20$ and $\sum (f \cdot x) = 1,500$, what is the value of $\sum f$?
(75, 150, 3,000, 30,000)
- b The median of four consecutive even numbers is 25, what is the largest of these numbers?
(28, 26, 25, 22)
- c The measure of the central angle of the circular sector which represents 35% of the circle is°.
(35, 108, 120, 126)
- d The angle with measure 80° has a vertically opposite angle with a measure of°.
(30, 80, 90, 180)
- e The projection of the point $(-7, 3)$ on the y-axis is
[$(-7, 0)$, $(0, 3)$, $(0, 0)$, $(7, -3)$]
- f The measure of the central angle of a sector representing $\frac{1}{3}$ the area of the circle equals°.
(120, 150, 240, 90)
- g The number of axes of symmetry of a square is
(2, 3, 4, 6)
- h If $(4 - 2k, 3m + 9)$ lies on y-axis, then k equals
(7, 5, 3, 2)
- i The mode of values 5, 4, 6, 8, 4, 5, 4, 8 is
(4, 5, 8, 6)

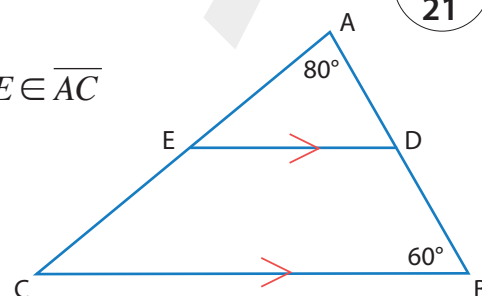
2 Answer the following:

21

- a In the opposite figure, the triangle ABC:
 $m(\angle A) = 80^\circ$, $m(\angle B) = 60^\circ$, $D \in \overline{AB}$, $\overline{ED} \parallel \overline{CB}$, $E \in \overline{AC}$

Find $m(\angle AED)$ and $m(\angle DEC)$

Proof:

 $\because \overline{ED} \parallel \overline{CB}$, $\overleftrightarrow{AB}$ is a transversal $\therefore m(\angle ADE) = m(\angle B) = 60^\circ$ (corresponding angles) In $\triangle AED$: $\therefore m(\angle AED) = 180^\circ - (80^\circ + 60^\circ) = 40^\circ$ $\therefore m(\angle AED) + m(\angle DEC) = 180^\circ$ (two adjacent supplementary angles) $\therefore m(\angle DEC) = 180^\circ - 40^\circ = 140^\circ$ 

- b** In a tennis match, a player hit 15 smashes, distributed as shown in the opposite table. Draw a pie chart for this distribution.

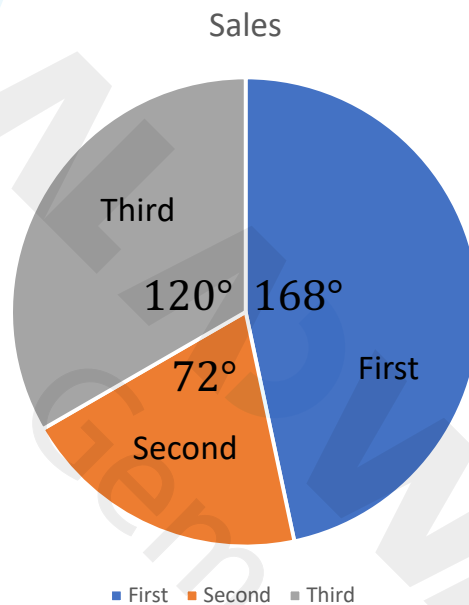
The number of smashes = $7 + 3 + 5 = 15$

The measure of the central angle of the first set
 $= \frac{7}{15} \times 360^\circ = 168^\circ$

The measure of the central angle of the second set = $\frac{3}{15} \times 360^\circ = 72^\circ$

The measure of the central angle of the third set = $\frac{5}{15} \times 360^\circ = 120^\circ$

Set	First	Second	Third
No. of hits	7	3	5



- c** Find three consecutive numbers whose sum equals 168

Let the numbers are $x, x + 2, x + 4$

$$x + x + 2 + x + 4 = 168$$

$$3x + 6 = 168$$

$$3x = 162$$

$$x = 54$$

the numbers are 54, 56, 58

- d** If the length of an insect is 0.3 mm and its length after magnification is 4.5 cm, find the magnification ratio.

$$\text{Scale of drawing} = \frac{\text{length in drawing}}{\text{real length}} = \frac{4.5 \times 10}{0.3} = 150$$

The magnification ratio = 150 : 1

- e Hany bought a refrigerator with a 10% discount. If he saved 430 L.E, what is the price of the refrigerator after the discount?

Discount : before : after

10% : 100% : 90%

430 :

The price after the discount = $\frac{90 \times 430}{10} = 3870 \text{ L.E}$

- f Sara's mother's age now is three times Sara's age, and she is also 24 years older than Sara, how old is each of them now?

Let Sara's age now be x and her mother's age is $3x$

$$3x - x = 24$$

$$2x = 24 \quad x = 12$$

So, Sara's age is 12 years and her mother is 36 years

- g In the opposite figure:

ABCD is a rhombus

$$m(\angle DBC) = 62^\circ$$

find with proof $m(\angle A)$

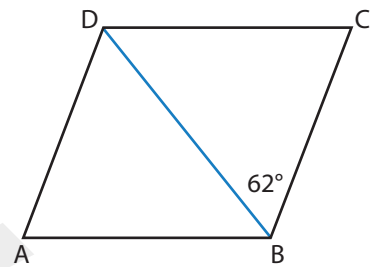
proof:

ABCD is a rhombus, $\overline{BD}$ is a diagonal

$$m(\angle ABD) = m(\angle DBC) = 62^\circ$$

$$m(\angle ABC) = 2^\circ \times 62^\circ = 124^\circ$$

$$m(\angle A) = 180^\circ - 124^\circ = 56^\circ$$



1 Choose the correct answer:

- a For a set of value: $\bar{x} = 25$, $\sum (f \cdot x) = 6,500$, what is the value of $\sum f$?

(162,500 , 6,475 , **260** , 6,525)

- b The number of axes of symmetry of an isosceles triangle is (**1** , 2 , 3 , 4)

- c The measure of the interior angle of a regular polygon with 10 sides is °.

(108 , 120 , 135 , **144**)

- d The mode =

stems	leaves
1	0 1
2	0 2 2 3 9
3	4 5 5 5 7 8

Key 3|4 means 34

(2 , 5 , 22 , **35**)

- e The type of angle which is supplementary to an obtuse angle is angle.

(**acute** , right , zero , straight)

- f The is a rhombus that has one right angle.

(**square** , rectangle , parallelogram , trapezium)

- g The median of the values 7 , 8 , 9 , 4 , 6 , 2 is

(5 , 6 , **6.5** , 7)

- h The projection of the point (-2 , 4) on the x-axis is

[(2 , -4) , (**-2** , 0) , (2 , 0) , (0 , 4)]

- i The point A(-3 , -6) is located in quadrant.

(first , second , **third** , fourth)

2 Answer the following:

- a If $a = 1\frac{1}{2}$, $b = \frac{3}{4}$, $c = \frac{-2}{3}$

Find the numerical value of the expression $ac + b$

$$ac + b = 1\frac{1}{2} \times \frac{-2}{3} + \frac{3}{4}$$

$$= \frac{3}{2} \times \frac{-2}{3} + \frac{3}{4} = -1 + \frac{3}{4} = \frac{-1}{4}$$

- b** In the opposite figure:

ABCD is a square

$$BD = (5a - 4) \text{ cm}, MC = (2a - 1) \text{ cm}$$

Find the value of a , and then find the length of $\overline{AC}$.

Proof:

ABCD is a square.

$$MD = MC$$

$$BD = 2 MC$$

$$5a - 4 = 2 (2a - 1)$$

$$5a - 4 = 4a - 2$$

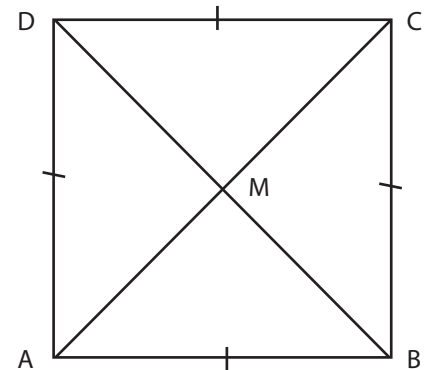
$$5a - 4a = 4 - 2$$

$$a = 2$$

$$BD = 5a - 4 = 5 \times 2 - 4 = 6 \text{ cm}$$

$$AC = BD$$

$$AC = 6 \text{ cm}$$



- c** If the distance between two cities on a map is drawn at a scale of 1 : 1,000,000 and the distance on the map is 12 cm, find the real distance in km.

$$\frac{1}{1,000,000} = \frac{12 \text{ cm}}{\text{real distance}}$$

$$\text{Real distance} = \frac{12 \times 1,000,000}{1} = 12,000,000 \text{ cm} = 120 \text{ km}$$

- d** What is the increase of the expression $-2a - b + 5$ than $-6 + 3a - 4b$?

$$-2a - b + 5 - (-6 + 3a - 4b)$$

$$-2a - b + 5 + 6 - 3a + 4b = (-2a - 3a) + (-b + 4b) + (5 + 6)$$

$$= -5a + 3b + 11$$

- e If the arithmetic mean of the numbers $16, n + 3, 14, 2n - 2$ is 15.25

Find the median of these numbers.

The arithmetic mean = $\frac{\text{sum of values}}{\text{number of values}}$

$$15.25 = \frac{16 + n + 3 + 14 + 2n - 2}{4}$$

$$61 = 3n + 31$$

$$3n = 30 \quad n = 10$$

The numbers : $16, 13, 14, 18$

The order : $13, 14, 16, 18$

$$\text{The median} = \frac{14 + 16}{2} = 15$$

- f Write all subsets of the following set $X = \{3, 2, 7\}$, then mention their number.

The subsets of set X are : $\{3\}, \{2\}, \{7\}, \{2, 3\}, \{2, 7\}, \{3, 7\}, \{3, 2, 7\}, \emptyset$

The number of subsets of $X = 8$

- g In the opposite figure:

ABCD is a parallelogram.

$AB = BH$ where $H \in \overrightarrow{AB}$

Prove that BHCD is a parallelogram.

Proof:

$\therefore$ ABCD is a parallelogram.

$$\therefore AB = DC$$

$$\therefore AB = BH$$

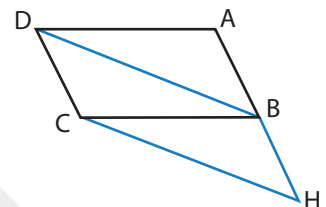
$$\therefore BH = DC$$

$$\therefore \overrightarrow{AB} \parallel \overrightarrow{CD}, H \in \overrightarrow{AB}$$

$$\therefore \overrightarrow{BH} \parallel \overrightarrow{CD}$$

$$\therefore DC = BH, \overrightarrow{BH} \parallel \overrightarrow{CD}$$

$\therefore$ BHCD is a parallelogram.



1 Choose the correct answer:

9

- a For a set of values: $\sum (f \cdot x) = 56$, $\sum f = 8$, then the value of $\bar{x} = \dots\dots\dots$ (5, 64, 48, 7)
- b If the arithmetic mean of the values 18, 23, 29, $2k - 1$, k is 18, then $k = \dots\dots\dots$
(1, 7, 29, 90)
- c If $\frac{4}{x} = \frac{20}{25}$, then the value of $x = \dots\dots\dots$ (64, 16, 5, 4)
- d The solution set in Z for the equation $7 - 3x = x + 3$ is $\dots\dots\dots$ ($\{1\}$, $\{3\}$, $\{7\}$,)
- e The multiplicative inverse of $2\frac{1}{4}$ is $\dots\dots\dots$ ($\frac{9}{4}$, $\frac{4}{9}$, $\frac{2}{3}$, $\frac{3}{2}$)
- f A parallelogram with base length of 12 cm, its corresponding height is 7 cm, then its area $\dots\dots\dots \text{cm}^2$. (64, 96, 84, 112)
- g The value of the expression $4x - 10$ at $x = -1$ is $\dots\dots\dots$ (14, 6, -6, -14)
- h What is the type of angle that supplements an acute angle?
(obtuse, straight, acute, reflex)
- i The number of axes of symmetry of a parallelogram is $\dots\dots\dots$ (0, 1, 2, 4)

2 Answer the following:

21

- a If the point A (-3, $2k - 4$) lies on x-axis, determine the quadrant in which the point B ($k - 6$, $-3k$) lies on.

$\therefore$ The point A lies on the x-axis

$\therefore$ The y-coordinate = 0

$\therefore 2k - 4 = 0$

$\therefore 2k = 4$

$\therefore k = 2$

By substituting with the value of k in the point B

You will find the point B is (-4, -6)

The point B lies in the third quadrant

- b From the opposite stem and leaf plot:

1 Write all the data

2 Find the mode, median, first quartile and third quartile.

1 2.1, 2.1, 2.2, 3.2, 3.3, 4.2, 4.2, 4.2, 5.1, 5.3, 5.5

2 The mode = 4.2

The median = 4.2

The first quartile = 2.2

The second quartile = 5.1

stems	leaves
2	1 1 2
3	2 3
4	2 2 2
5	1 3 5

Key 3|2 means 3.2

- c If ABCD is a parallelogram , $m(\angle B) = (3x + 37)^\circ$, $m(\angle D) = (9x + 1)^\circ$

What is the measure of $(\angle C)$?

$$m(\angle B) = m(\angle D)$$

$$3x + 37 = 9x + 1$$

$$6x = 36 \quad , \quad x = 6$$

$$m(\angle B) = 3 \times 6 + 37 = 18 + 37 = 55^\circ$$

$$m(\angle C) = 180^\circ - m(\angle B) = 180^\circ - 55^\circ = 125^\circ$$

- d In the opposite figure:

ABCD is a rhombus, $m(\angle DBC) = 72^\circ$

Find $m(\angle A)$

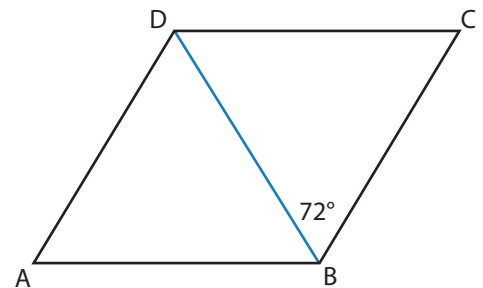
Proof:

ABCD is a rhombus , $\overline{BD}$ is a diagonal

$$m(\angle ABD) = m(\angle DBC) = 72^\circ$$

$$m(\angle ABC) = 2 \times 72 = 144^\circ$$

$$m(\angle A) = 180^\circ - 144^\circ = 36^\circ$$



- e If $\frac{k}{4} = 9$, what is the value of $\frac{1}{2}k - 7$?

$$\frac{k}{4} = 9$$

$$k = 4 \times 9 = 36$$

$$\frac{1}{2}k - 7 = \frac{1}{2} \times 36 - 7 = 18 - 7 = 11$$

- f If 15 % of x equals 20% of y , what is the ratio of $x : y$?

$$\frac{15}{100} \times x = \frac{20}{100} y$$

$$15x = 20y$$

$$\frac{x}{y} = \frac{20}{15} = \frac{4}{3}$$

- g A car uses 5 liters of petrol to cover a distance of 60 km, how much petrol would the car need to cover the distance of 180 km if it travels at the same rate?

$$\text{The car needs} = \frac{5}{60} = \frac{x}{180}$$

$$60x = 5 \times 180$$

$$\text{then } x = 900 \div 60 = 15,$$

then the car needs 15 liters

حمل الآن

مجاناً وحصرياً

امتحانات رقم (3)

الترم الاول



MODEL EXAM NO (1)

[Q1] Choose the correct answer:

(1) If $\frac{9}{k+1} = \frac{3}{5}$, then the value of K is

- a) 13 b) 14 c) 15 d) 16

(2) The solution set of the equation $4(2X + 7) = 12$ in N is

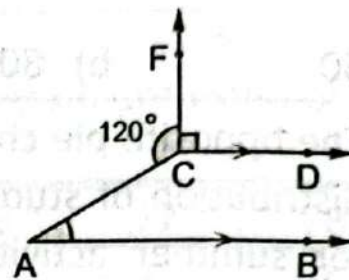
- a) { 2 } b) { - 2 } c) { - 4 } d) $\emptyset$

(3) In the opposite figure:

$$\overline{AB} \parallel \overline{CD}, \overline{CF} \perp \overline{CD}$$

$$m(\angle ACF) = 120^\circ$$

$$\text{Then } m(\angle A) = \dots\dots\dots^\circ$$



- a) 20 b) 30 c) 50 d) 70

(4) If the drawing scale of the map is 1:200000 and the distance between two points on the map is 3.5 cm, then the real distance between two points in kilometer is km

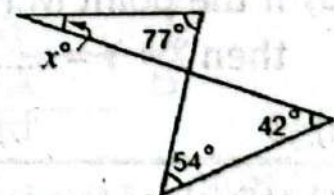
- a) 3.5 b) 7 c) 1 d) $\frac{1}{2}$

(5) $-3 - (-2) = \dots\dots\dots$

- a) - 5 b) - 1 c) 1 d) 5

(6) In the opposite figure:

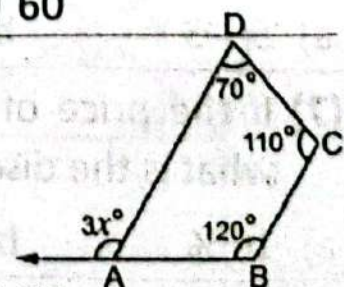
$$\text{The value of X is } \dots\dots\dots^\circ$$



- a) 19 b) 32 c) 48 d) 60

(7) In the opposite figure:

$$\text{The value of X is } \dots\dots\dots^\circ$$



- a) 40 b) 50 c) 60 d) 70

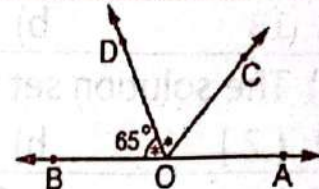
[Q2] Choose the correct answer:

(1) Which of the following equations doesn't equivalent to equation $4X + 5 = 9$?

- a) $3X = 3$ b) $4X + 1 = 5$ c) $X - 1 = 5$ d) $X + 1 = 2$

(2) In the opposite figure:

$m(\angle DOA) = \dots\dots\dots^\circ$



- a) 50 b) 80 c) 115 d) 130

(3) The opposite pie chart illustrates the distribution of student's preferences for summer activities. If there are 200 students participating in all the activities, how many students choose basketball?



- a) 30 b) 50 c) 60 d) 70

(4) Number of axes of symmetry of regular hexagon is

- a) 2 b) 3 c) 4 d) 6

(5) If the point $M(4, 3)$ is midpoint of $\overline{AB}$ where $A(x, 5)$, $B(2, Y)$ then $X + Y = \dots\dots\dots$

- a) 3 b) 5 c) 7 d) 9

(6) Which of the following equal $8Y$?

- a) $5 + 3Y$ b) $3 + 5Y$ c) $8 + Y$ d) $3Y + 5Y$

(7) If the price of a product is reduced from 2000 LE to 1700 LE, what is the discount rate?

- a) 10% b) 15% c) 25% d) 27%

[Q3] Answer the following questions:

[1] Simplify the expression: $3(a - 2b) - 2(a + b)$, then find the value of expression if $a = 5$, $b = -1$

[2] Three persons participated in a project with a capital of 750,000LE. It was divided in the ratio of 4 : 5 : 3. Calculate the share of each person in the capital.

[3] If the masses of a group of students in kilogram are listed on the following table:

Mass (KG)	72	73	75	76	77	78
Frequency	1	3	5	3	6	2

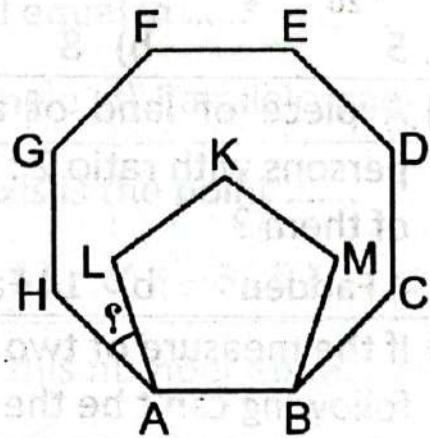
[4] In the opposite figure:

ABCDEFGH is a regular octagon

And ABMKL is a regular pentagon

Find with proof:

$m(\angle HAL)$

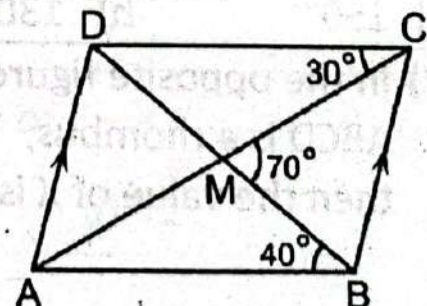


[5] In the opposite figure:

$$\overline{AC} \cap \overline{BD} = \{M\}$$

Prove that:

ABCD is a parallelogram



◆◆◆
End of the questions

MODEL EXAM NO (2)

[Q1] Choose the correct answer:

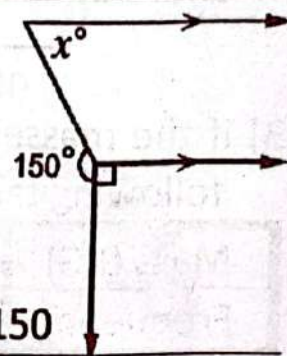
(1) The multiplicative inverse of the number $-3\frac{1}{2}$ is

- a) $-\frac{7}{2}$ b) $-2\frac{1}{3}$ c) $-\frac{2}{7}$ d) $\frac{2}{7}$

(2) Which of the following equations has no solution?

- a) $6X = 12$ b) $6X = 15$ c) $6X = 18$ d) $6X = 24$

(3) In the opposite figure:

The value of $X = \dots\dots\dots^\circ$ 

- a) 30 b) 60 c) 120 d) 150

(4) If $\frac{X}{20} = \frac{3}{4}$, then value of X is

- a) 5 b) 8 c) 10 d) 15

(5) A piece of land of area 36 Fadden is divided between two persons with ratio 2 : 7, which of the following may share of one of them ?

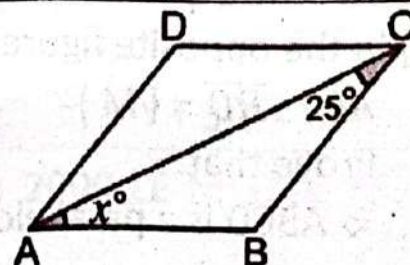
- a) 4 Fadden b) 14 Fadden c) 18 Fadden d) 28 Fadden

(6) If the measure of two angle of triangle are 30° , 70° , which of the following can't be the measure of exterior angle?

- a) 150° b) 130° c) 110° d) 100°

(7) In the opposite figure:

ABCD is a rhombus,
then the value of X is



- a) 25 b) 50 c) 100 d) 130

[Q2] Choose the correct answer:

(1) Which inequality expresses that the appropriate height in cm for choosing a person to practice a sport must not be less than 180 cm?

- a) $X < 180$ b) $X > 180$ c) $X \leq 180$ d) $X \geq 180$

(2) If the two complementary angles are vertically opposite angle, then measure of each on is°

- a) 30 b) 45 c) 90 d) 180

(3) For some data, if $\bar{X} = 20$, $\sum(f \cdot x) = 1500$,

Then the value of $\sum f = \dots\dots\dots$

- a) 75 b) 150 c) 300 d) 30000

(4) The two diagonals are perpendicular and equal in

- a) Square b) Rhombus c) Rectangle d) Parallelogram

(5) The projection of the point $(-3, 5)$ on X-axis is the point

- a) $(0, 5)$ b) $(-3, 0)$ c) $(3, -5)$ d) $(-3, 5)$

(6) If three times a number is 27, then third this number equals

- a) 3 b) 1 c) $\frac{3}{2}$ d) $\frac{9}{4}$

(7) If $\{6, 3, Y, 5\} = \{3, 6, 7, X\}$, then value of $Y - X = \dots\dots\dots$

- a) -12 b) -2 c) 2 d) 12

[Q3] Answer the following questions:

[1] Find the result of:

$$5a + 2b - 3c, 4a + b - c, 3a - 2b + 6c$$

[2] If the drawing scale of the map is 1:4000000, and the real distance between two cities is 350 KM. find the distance between two cities on the map

[3] The following table shows the number of minutes some people spend on phone calls:

Minutes	2	3	4	5	6
Frequency	12	20	36	20	12

↪ Calculate the average number of minutes that a people spend on phone calls. □

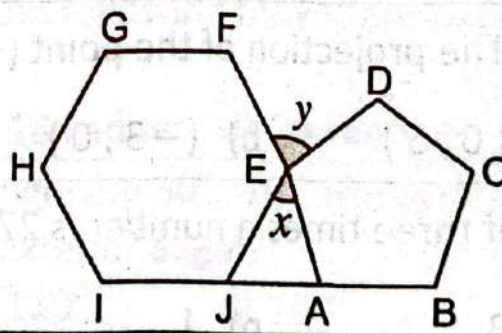
[4] In the opposite figure:

ABCDE is regular pentagon

EFGHIJ is regular hexagon,

 $A \in \overline{IB}, j \in \overline{IB}$

Find with proof value of X, Y

[5] If ABCD is a parallelogram where $A(-1, 1), B(4, 2), D(1, 4)$

Find the coordinate of:

① Intersection point of two diagonal

② The coordinate of vertex C

◆◆◆

End of the questions

MODEL EXAM No (3)

[Q1] Choose the correct answer:

(1) If the length of drawing is 2 cm and the real length 6 m, then the drawing scale is

- a) 1 : 3 b) 1 : 30 c) 1 : 300 d) 1 : 3000

(2) $|-5| + \dots = 0$

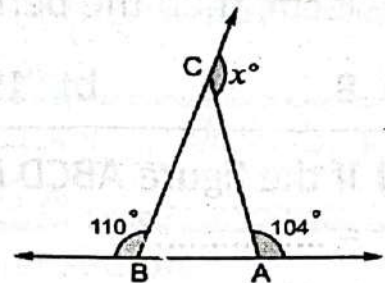
- a) -5 b) 5 c) 0 d) 1

(3) Which of the following is solution in Q of equation: $6(X - 3) = 0$

- a) 0 b) 2 c) 3 d) 6

(4) In the opposite figure:

The value of X is°



- a) 146 b) 164 c) 120 d) 150

(5) If $\frac{30}{x+1} = \frac{5}{7}$, then the value of X is

- a) 40 b) 41 c) 42 d) 43

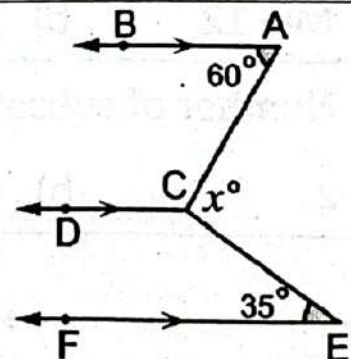
(6) An isosceles triangle, length of two sides are 3 cm , 7 cm, then the length of third side equals cm

- a) 3 b) 4 c) 5 d) 7

(7) In the opposite figure:

$$\overrightarrow{AB} // \overrightarrow{CD} // \overrightarrow{EF}$$

Then the value of X =°



- a) 25 b) 50 c) 100 d) 130

(1) Which inequality expresses that Basem needs at least 10 GB per month to complete his work online?

- (2) The ratio between two supplementary angles is 4 : 5, then the measure of smallest angle is

- (3)** If the arithmetic mean between the lengths of sides of triangle is 8 cm, then the perimeter of triangle equals cm

- (4)** If the figure ABCD is a rhombus, $m(\angle ACB) = 32^\circ$, then $m(\angle D) = \dots\dots\dots^\circ$

- (5) If the point $(X, 7)$ lies on Y-axis, then the value of $5X + 1$ is**

- (6) If the perimeter of rectangle is 24 cm, and its length M cm, then the width of rectangle equals Cm

- (7) Number of subsets of the set $A = \{ 6, 4 \}$ equals

- ◆

[Q3] Answer the following questions:

[1] What is the decrease of expression:

$$5a + 2b - 3c \text{ than } 6a - 2b + 7c$$

[2] If the ratio of the number of hydrogen atoms to the number of oxygen atoms in a water molecule is 2:1 then how many atoms of each are in a molecule of a drop of water that contains 1,200,000 atoms?

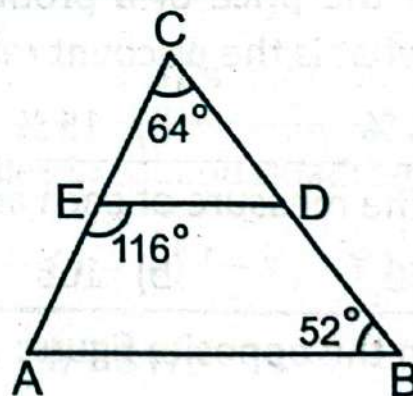
[3] In a questionnaire for a group of people about their favorite sport, the results of the questionnaire were as follows:

Sports	Handball	Basketball	Football	Volleyball
ratio	15 %	25 %	45 %	

↳ Represent these data with circular sector.

[4] In the opposite figure:

Proof that $\overline{ED} \parallel \overline{AB}$



[5] If A (- 7 , 13), B (3 , 5), find the coordinate of the points which divides $\overline{AB}$ into four equal parts

◆◆◆

End of the questions

MODEL EXAM NO (4)

[Q1] Choose the correct answer:

(1) $\{2, 7\} \subset \{2, 5, X+1\}$, then the value of X is

- a) 2 b) 5 c) 6 d) 7

(2) If K is negative number, which of the following is greater?

- a) $5K$ b) $-5K$ c) $\frac{5}{K}$ d) $\frac{K}{5}$

(3) If $\frac{2}{5}X = 10$, then the value of $\frac{4}{5}X$ equals□

- a) 25 b) 15 c) 20 d) 5

(4) The ratio between two supplementary angles is 5:13, then the measure of greatest angle is°

- a) 50 b) 65 c) 130 d) 180

(5) If the price of a product is reduced from 1500 LE to 1200 LE, what is the discount rate?

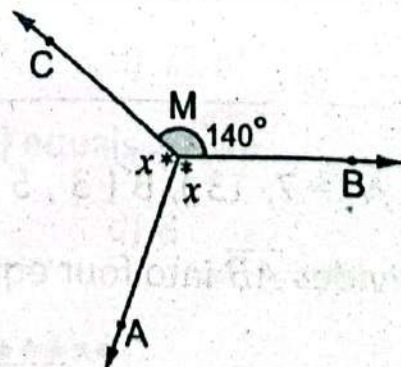
- a) 3% b) 15% c) 20% d) 30%

(6) The measure of each angle of regular hexagon equals°

- a) 60 b) 108 c) 120 d) 135

(7) In the opposite figure:

The value of X is



- a) 100 b) 110 c) 140 d) 220

[Q2] Choose the correct answer:

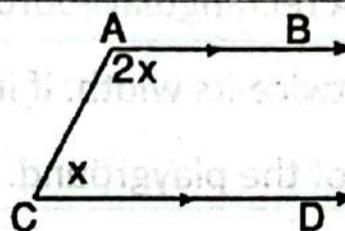
(1) If the age of Ziad now is X , and its age since 7 years is 18 years, which of the following equation represents this situation?

- a) $X + 7 = 25$ b) $X - 7 = 11$ c) $X + 7 = 18$ d) $X - 7 = 18$

(2) In the opposite figure:

$$\overrightarrow{AB} \parallel \overrightarrow{CD},$$

The value of X is°



- a) 30 b) 60 c) 120 d) 150

(3) The median for the values 3 , 5 , 12 , 17 , 14, 18 is

- a) 12 b) 13 c) 14 d) 15

(4) The number of axes of symmetry of a parallelogram is

- a) Zero b) 1 c) 2 d) 4

(5) If $Y > 0$, $X < 0$, then the point in which lies in second quadrant?

- a) (X, Y) b) $(-X, Y)$ c) $(X, -Y)$ d) $(-X, -Y)$

(6) The additive inverse of expression $3a - 2b + 8$ is

- a) $-3a - 2b + 8$ b) $-3a + 2b + 8$ c) $-3a + 2b - 8$ d) $3a + 2b - 8$

(7) If $2 \in \{6, X + 1\}$, then the value of $X =$

- a) 1 b) 2 c) 6 d) zero

[Q3] Answer the following questions:

[1] What the increase of $5X + 2Y - 3K$ than $2X - 3Y + 5K$

[2] A rectangular football playground its length is 15 meters less than twice its width. If its perimeter is 330 meters, find the dimensions of the playground.

[3] The following table shows the marks of a student in exam:

Marks	6	9	12	15	17
No. of students	4	7	8	5	6

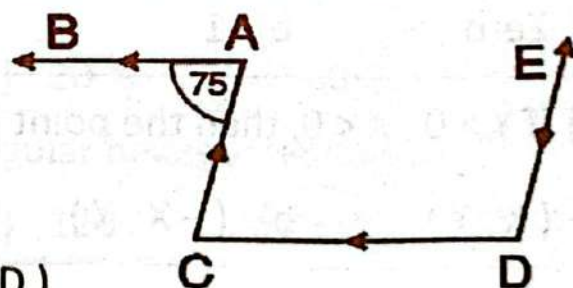
↳ Find the arithmetic mean of these marks?

[4] In the opposite figure:

$$\overrightarrow{AB} \parallel \overrightarrow{CD}, \overrightarrow{DE} \parallel \overrightarrow{AC}$$

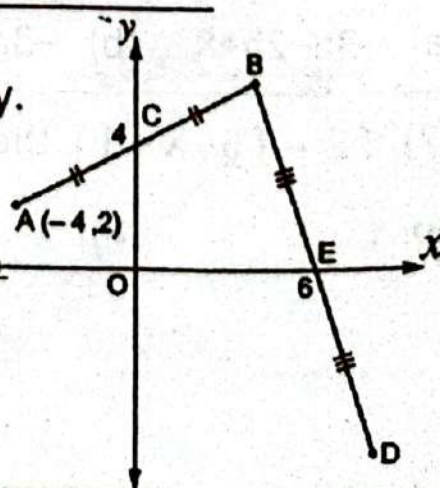
$$m(\angle A) = 75^\circ,$$

Find with proof $m(\angle A), m(\angle D)$



[5] If E, C are midpoints of $\overline{BD}, \overline{AB}$ respectively.

Find the coordinate of point D.



◆◆◆
End of the questions

MODEL EXAM No (5)

[Q1] Choose the correct answer:(1) If : $\{x + 1, 5\} = \{7, 5\}$, then $x = \dots$

- a) 4 b) 5 c) 6 d) 7

(2) If : $\frac{a}{3} = \frac{4}{b}$ then $ab = \dots$

- a) 3 b) 4 c) 7 d) 12

(3) If : $\frac{26}{k} + 1 = 14$, then the value of $k = \dots$

- a) 2 b) 10 c) 13 d) 15

(4) The acute angle complements Angle

- a) Zero b) Acute c) Right d) Obtuse

(5) Which of the following equals to : $\frac{8}{3} \times \frac{-3}{8}$?

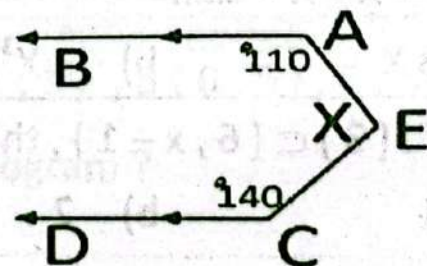
- a) $2\frac{1}{4} \times \frac{4}{9}$ b) $3\frac{1}{2} \times \frac{-2}{5}$ c) $-\frac{1}{4} \times (-4)$ d) $2\frac{1}{2} - 3.5$

(6) The outer sides of two supplementary adjacent angles are

- a) Coincide c) Perpendicular
b) Skew d) On the same straight line

(7) In the opposite figure:

$$\overrightarrow{AB} \parallel \overrightarrow{CD},$$

The value of $x = \dots^\circ$ 

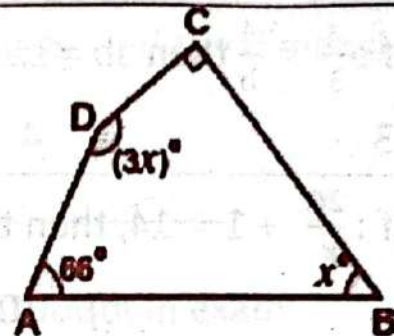
- a) 110 b) 140 c) 160 d) 180

[Q2] Choose the correct answer:

(1) which of the following statement equivalent to the sum of two consecutive number is 29

- a) $X + x + 2 = 29$ c) $X + X - 1 = 28$
 b) $X + X + 1 = 30$ d) $X + X + 2 = 29$

(2) In the opposite figure:
 ABCD is a quadrilateral
 then $X = \dots\dots^\circ$



- a) 50 b) 51 c) 52 d) 53

(3) The mean of the following values $(3 - x, 5 + 2x, 4 - x)$ is

- a) 3 b) 4 c) 5 d) 6

(4) The number of axes of symmetry of regular hexagon is

- a) 3 b) 4 c) 5 d) 6

(5) If $x < 0, y > 0$, then the point Lies in 3rd quadrant

- a) (x, y) b) $(-x, y)$ c) $(x, -y)$ d) $(-x, -y)$

(6) $X + X + X = \dots\dots\dots$

- a) $3X$ b) $3X^3$ c) $X + 3$ d) $3X$

(7) If $\{3\} \subset \{6, x - 1\}$, then the value of $x = \dots\dots\dots$

- a) 1 b) 2 c) 3 d) 4

[Q3] Answer the following questions:

[1] If the sum of two expression $7x + 2y - 5k + 6l$, and one of them is $3x + 4y - k + 3l$ find the other expression ?

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[2] find three even numbers their sum 12 ?

.....

.....

[3] Represent the data using Pie chart

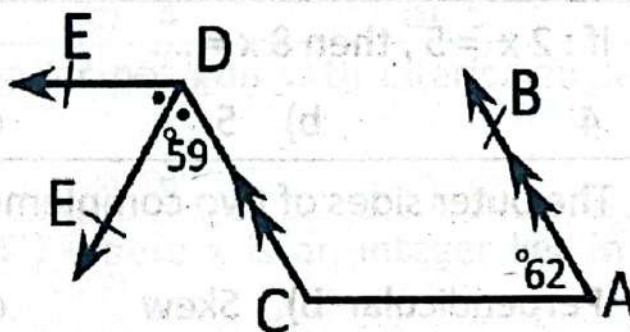
Favorite color	Red	Blue	Green	Yellow
Percentage	25 %	30 %	10 %	35 %

[4] in the opposite figure:

$$\overline{AB} \parallel \overline{CD}, m(\angle CDF) = 59^\circ$$

$$m(\angle A) = 62^\circ,$$

Prove that : $\overline{AC} \parallel \overline{DE}$



[E] If ABCD is a quadrilateral where $A(-1, 1)$, $B(0, 5)$, $C(5, 6)$, $D(4, 2)$ prove that ABCD is a parallelogram ?

.....

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End of the questions

[3] Answer the following questions:

[A] Find in Q : $3(x - 1) + 4 = 3$

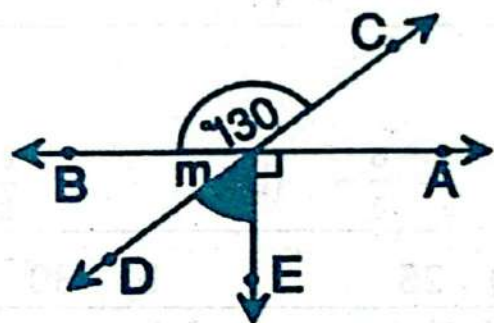
[B] find the sum of the following : $6x + 3y - 2z$, $5x - 2y + 3z$, $7x + 2y - 5z$?

[C] In the opposite figure :

$$\overline{AB} \cap \overline{CD} = \{M\}, \overline{ME} \perp \overline{AB},$$

$$m(\angle BMC) = 130^\circ,$$

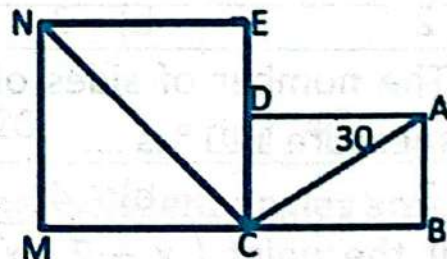
Find the $m(\angle DME)$ with proof?



[D] ABCD is a rectangle

ECMN is a square, $m(\angle CAD) = 30^\circ$

Find with proof $m(\angle ACN)$?



[E] Represent the data with suitable Cartesian diagram

month	July	August	September	October	November	December
No. computer	8	6	7	8	8	7

◆◆◆
End of the questions

MODEL EXAM No (7)

[1] Choose the correct answer:

(1) The angle of measure 50° supplements angle of measure $^\circ$

- a) 40 b) 130 c) 50 d) 310

(2) If : $x \notin \{1, 4, 3\}$ then $x = \dots\dots$

- a) 4 b) 3 c) 2 d) 1

(3) If : $a \times \frac{6}{5} = 1$, then $a = \dots\dots$

- a) $\frac{5}{6}$ b) $-\frac{6}{5}$ c) $-\frac{5}{6}$ d) $\frac{6}{5}$

(4) If : $x + 3y = 7$, then $x + 3(y + 5) = \dots\dots\dots$

- a) 3 b) 7 c) 21 d) 22

(5) If : $2a + 3 = 15$ then $\frac{1}{3}a = \dots\dots$

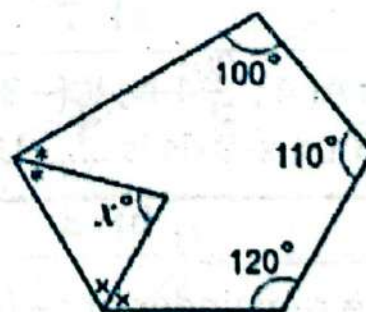
- a) 2 b) 6 c) 12 d) 15

(6) Two straight lines are parallel to the third are

- a) Perpendicular b) Coincides c) Parallel d) Intersecting

(7) In the opposite figure :

the value of $x = \dots\dots^\circ$



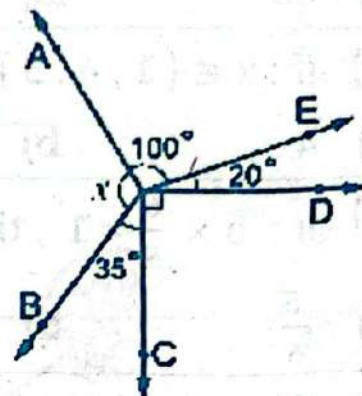
- a) 25 b) 75 c) 105 d) 110

[2] Choose the correct answer:

(1) If the length in reality 90m., and the scale drawing 1 : 100,000 ,then length in drawing iscm.

- a) 0.09 b) 90 c) 9 d) 0.9

(2) In the opposite figure :
the value of $x = \dots\dots\dots^\circ$



- a) 110 b) 115 c) 120 d) 130

(3) If the mode of the following data { 9 , $x+2$, 7 , 5 } is 5 then the value of $x = \dots\dots\dots$

- a) 2 b) 3 c) 4 d) 5

(4) If : 3 cm. ,7cm. are two lengths in a triangle then the length of the third side iscm.

- a) 5 b) 7 c) 8 d) 9

(5) If : $A(4, -4)$, $B(-3, 2)$ then the length of the projection of $\overline{AB}$ on x- axis is Unit length

- a) 1 b) 3 c) 4 d) 7

(6) The remainder of : $\frac{1}{7}$ from $\frac{8}{7}$ is

- a) 1 b) -1 c) $\frac{9}{7}$ d) $-\frac{9}{7}$

(7) If $x + \frac{3}{2} = 0$ then $2x = \dots\dots\dots$

- a) 3 b) -3 c) 2 d) -2

[3] Answer the following questions:

[1] Two consecutive natural numbers, one of them is twice the other find the two numbers?

[2] The following data represent the number of hours of practice sports in the week

Number of hours	8	9	10	11	12
frequency	6	8	14	8	4

↪ Calculate the mean ?

[3] Add: $x - 3y + 5z$, $3x - 5y + 4z$

↪ Then subtract the result from $8x - 3y + 5y$

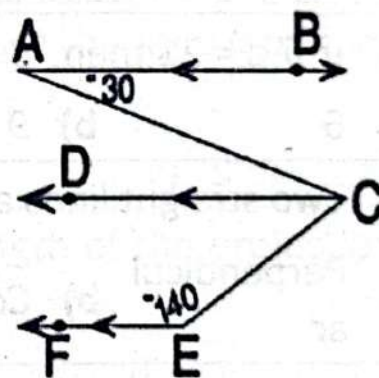
[4] In the opposite figure :

$$\overline{AB} \parallel \overline{CD} \parallel \overline{EF}$$

$$m(\angle BAC) = 30^\circ,$$

$$m(\angle E) = 140^\circ$$

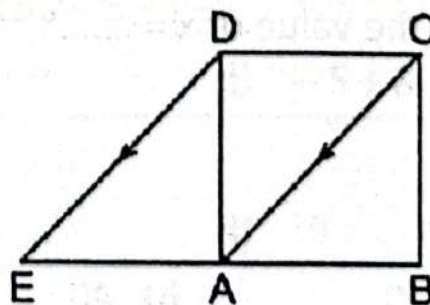
↪ Find with proof : $m(\angle ABC)$



[5] In the opposite figure :

ABCD is a square, $\overline{ED} \parallel \overline{AC}$

Prove that: $AB = EA$



◆◆◆
End of the questions

MODEL EXAM No (8)[1] Choose the correct answer:

(1) The sum of 4 accumulative angles at a point The sum of 5 accumulative angles at a point

- a) $<$ b) $>$ c) $=$ d) Otherwise

(2) If : $\{x\} \not\subset \{1, 4, 3\}$ then $x = \dots\dots$

- a) 4 b) 3 c) 2 d) 1

(3) $|-3| + |5| + |0| = \dots\dots$

- a) 8 b) 2 c) 0 d) -2

(4) If : $\frac{3}{x} = \frac{y}{2}$, then $xy - 6 = \dots\dots$

- a) 6 b) $\frac{1}{6}$ c) 0 d) 12

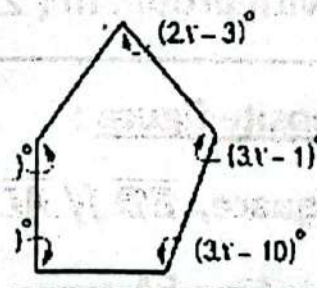
(5) If $7a = 21$ then $3a = \dots\dots$

- a) 6 b) 9 c) 12 d) 21

(6) Two straight lines are perpendicular to a third are

- a) Perpendicular b) Coincides c) Parallel d) Intersecting

(7) In the opposite figure :
the value of $x = \dots\dots^\circ$



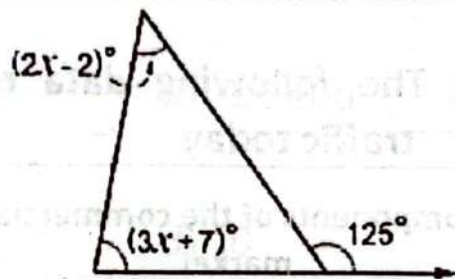
- a) 30 b) 40 c) 50 d) 60

[2] Choose the correct answer:

(1) If the length in drawing 14 cm., and the scale drawing 1 : 300,000 ,then length in reality iskm.

- a) 40 b) 41 c) 42 d) 45

(2) In the opposite figure :
the value of $x = \dots\dots\dots^\circ$



- a) 20 b) 24 c) 25 d) 30

(3) If the mean of the following data $\{ 9 , x , 7 , 5 \}$ is 6 then the value of $x = \dots\dots\dots$

- a) 2 b) 3 c) 4 d) 5

(4) If : 3 cm. ,7cm. are two lengths in a triangle then the length of the third side iscm.

- a) 4 b) 5 c) 8 d) 9

(5) If : $A(4 , - 4) , B(- 3 , 2)$ then the length of the projection of $\overline{AB}$ on y- axis is Unit length

- a) 2 b) 3 c) 6 d) 7

(6) Which of the following is equivalent to $- 5 - (- 8)$

- a) $5 - 8$ b) $8 - 5$ c) $5 + 8$ d) $- 5 + 8$

(7) The solution of : $2 (x - 5) = 0$ in Q is

- a) 0 b) -5 c) 5 d) 10

[3] Answer the following questions:

- [1] Two consecutive natural numbers ,one of them is thrice the other find the two numbers ?

- [2] The following data represent the marketplaces spotted the traffic today

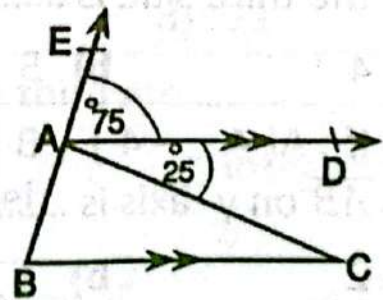
Components of the commercial market	Sweets	Juices and drinks	Albanian	Nutrients
percentage	45 %	35 %		5 %

↳ Representing data by circular sectors?

- [3] What is the increase: $3a - 5b + 4c$ than the sum of :
 $4a - b + 3c$ and $3a - 2b + 4c$

- [4] In the opposite figure :

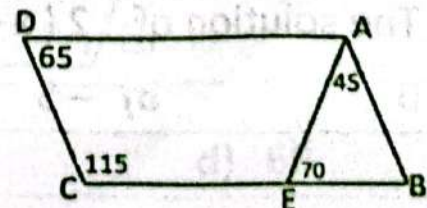
$$\begin{aligned} \overline{AD} &\parallel \overline{BC} \\ m(\angle EAD) &= 75^\circ, \\ m(\angle DAC) &= 25^\circ \end{aligned}$$



Find with proof: measures of the interior angle of $\triangle ABC$

- [5] In the opposite figure :

Prove that : ABCD is a parallelogram



End of the questions

MODEL EXAM No (9)

[1] Choose the correct answer:

(1) If the length in drawing 5 cm., and length in drawing 2 meters, then the scale drawing iscm.

- a) 5 : 2 b) 2 : 5 c) 1 : 40 d) 1 : 400

(2) If : $|H| = 8$ then $H =$

- a) 8 b) -8 c) ± 8 d) 0

(3) Which of the following represent the solution of the equation $4x + 7 = 9$ in Q

- a) $\frac{1}{2}$ b) $-\frac{1}{2}$ c) -2 d) 2

(4) If : $\frac{12}{a-5} = \frac{3}{8}$, then $a =$

- a) 32 b) 27 c) 37 d) 14

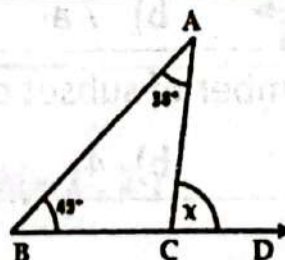
(5) If : $2a + 3 = 15$ then $\frac{1}{3}a =$

- a) 2 b) 6 c) 12 d) 15

(6) If : 4 cm. ,6cm. are two lengths in a triangle then the length of the third side iscm.

- a) 10 b) 12 c) 2 d) 5

(7) In the opposite figure :
the value of $x =$ °



- a) 65 b) 77 c) 56 d) 83

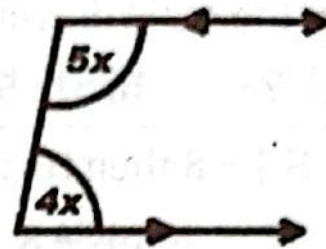
[2] Choose the correct answer:

(1) The solution of : $x > 5$ is

- a) 0.32 b) 3 c) - 35 d) 15

(2) In the opposite figure :

the value of $x = \dots\dots^\circ$



- a) 40 b) 50 c) 80 d) 100

(3) If the ratio between two complementary angles 2 : 7 then the measure of the smallest angle is

- a) 10 b) 20 c) 70 d) 140

(4) If the mean of the following data { 8 , m , 5 } is 6 then the value of m is

- a) 18 b) 6 c) 13 d) 3

(5) If $A(x + 2, y - 3)$ is the origin point then $x + y = \dots\dots$

- a) 1 b) 3 c) 5 d) - 2

(6) The side length of the rhombus whose perimeter 28 a cm. is

- a) $A - 28$ b) $7a$ c) $49a^2$ d) $28a - 4$

(7) The number of subset of the set $A = \{ 3 , 1 , 6 \}$ is

- a) 2 b) 4 c) 6 d) 8

[3] Answer the following questions:

[1] Hisham , Salman and Walid setup a timer trading company in the ratio $2 : 3 : 1$ if the profit were to be 120,000 find the share of each one ?

[2] The following data represent the number of hours of practice sports in the week

Number of hours	8	9	10	11	12
frequency	6	8	14	8	4

↳ Calculate the mean ?

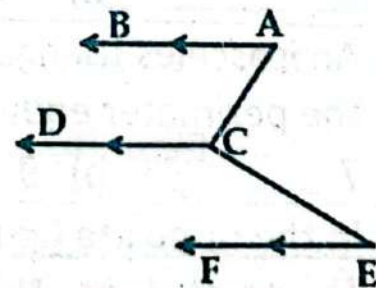
[3] Add: $3X - 2Y + Z$, $X + 2Y + 3Z$

↳ Then find the numerical value when $X + Z = 7$

[4] In the opposite figure:

$$m(\angle A) + m(\angle E) = 90$$

↳ Find: $m(\angle ACD) + m(\angle ECD)$



[5] In the opposite figure:

If $C(1, 4)$ is the midpoint of $\overline{AB}$ where $A(-1, 2)$

↳ Find the coordinates of B ?

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End of the questions

MODEL EXAM No (10)

[Q1] Choose the correct answer:

(1) If the length in drawing is 5 cm, and drawing scale is 1:20000, then the real length is KM

- a) 1 b) 100 c) 1000 d) 100000

(2) If $|F| - 2 = 2$, then $F = \dots\dots\dots$

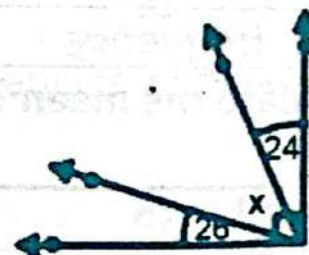
- a) 0 b) 4 c) ± 4 d) -4

(3) Which of the following is solution of equation $\frac{1}{3}X - 1 = 1$ in Q ?

- a) 0 b) 2 c) 4 d) 6

(4) In the opposite figure:

The value of X is



- a) 20° b) 30° c) 40° d) 50°

(5) If $\frac{5}{Y-1} = \frac{20}{24}$, then the value of Y =

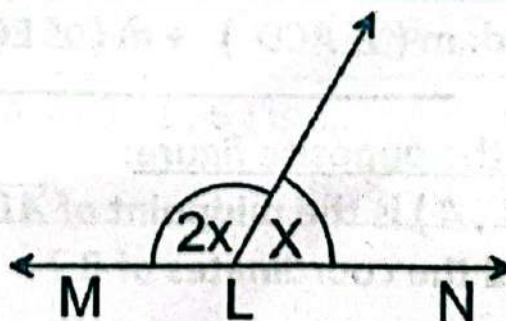
- a) 6 b) 7 c) 8 d) 9

(6) An isosceles triangle whose length of two sides 5 cm , 2 cm, then the perimeter equals

- a) 7 b) 9 c) 10 d) 12

(7) In the opposite figure:

The points L, M , N
are on the same straight line
the value if X = $^\circ$



- a) 30 b) 45 c) 60 d) 75

[Q2] Choose the correct answer:

(1) Which inequality expresses that Salma needs no more than hours to read a novel?

- a) $X \leq 5$ b) $X \geq 5$ c) $X < 5$ d) $X > 5$

(2) If the difference between measure of two angles is 40° , and ratio between them 3 : 8, then measure of the smaller is $^\circ$

- a) 24 b) 40 c) 65 d) 88

(3) The mean of the values 9, $L - 3$, $6 - L$ is

- a) 3 b) 4 c) 6 d) 9

(4) If the figure ABCD is a parallelogram, $m(\angle BAC) = 50^\circ$, then $m(\angle ACD) = \dots\dots\dots^\circ$

- a) 40 b) 50 c) 65 d) 130

(5) Length of projection from point $(-4, -7)$ on X-axis equals

- a) -4 b) 4 c) -7 d) 7

(6) Square of side length 10 a cm, its perimeter is Cm

- a) $20a$ b) $40m$ c) $100a^2$ d) $1000a^3$

(7) Number of subsets from $K = \{5\}$ is

- a) 0 b) 1 c) 2 d) 3

[Q3] Answer the following questions:

[1] Find the sum of : $5X - 2Y + 3Z$, $2Z + 2Y - 5X$

↳ then find the numerical value at $Z = 4$

[2] Shahd, Amira and Basant founded a pharmaceutical company with ratio $3 : 4 : 5$, at the end of the year the profit is 60000 L.E. Find the share of each of them

[3] In a survey of a group of women about their favorite TV shows

Show	Health	Series	Movies	Kitchen
Ratio	15 %	35 %	20 %	

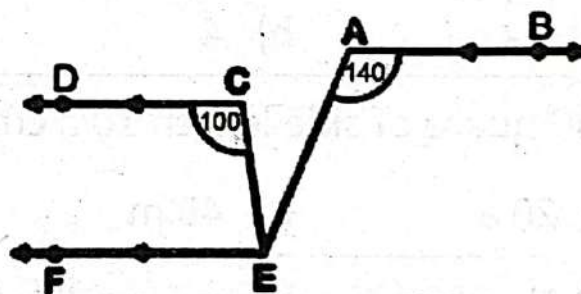
↳ Represents this data with pie chart

[4] In the opposite figure:

$$\overline{AB} \parallel \overline{CD} \parallel \overline{EF}$$

$$m(\angle C) = 140^\circ, m(\angle A) = 100^\circ$$

Find the $m(\angle AEC)$



[5] If point $C(X, 2)$ is midpoint of AB , $A(3, 2)$, $B(5, Y)$. Find the value of X, Y

◆◆◆
End of the questions

MODEL EXAM NO (11)**[Q1] Choose the correct answer:****(1)** The ratio $\frac{2}{5}$ equivalent to

- a) $\frac{12}{15}$ b) $\frac{5}{8}$ c) $\frac{14}{35}$ d) $\frac{9}{12}$

(2) If $A = \{ 1, 4, 7 \}$, which of the following subset of A?

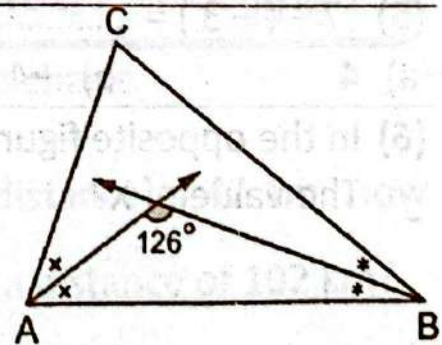
- a) $\{ 1, 7 \}$ b) $\{ 4 \}$ c) $\emptyset$ d) All of previous

(3) $0.\overline{81} = \dots\dots\dots$

- a) $\frac{81}{100}$ b) $\frac{81}{10}$ c) $\frac{9}{11}$ d) $\frac{7}{11}$

(4) Which of the graphical charts in which the real data is not shown.....

- a) Dot plot c) Histogram
b) Stem and leaf plot d) Bar graph

(5) In the opposite figure: $m(\angle C) = \dots\dots\dots^\circ$ 

- a) 54 b) 108 c) 72 d) 27

(6) Number of axes of symmetry of an isosceles triangle is

- a) 4 b) 3 c) 2 d) 1

(7) The coordinate of the midpoint of $\overline{AB}$ where $A(3, -4)$, $B(-5, 10)$ is.....

- a) $(4, 7)$ b) $(-2, 6)$ c) $(-1, 3)$ d) $(1, -3)$

[Q2] Choose the correct answer:

(1) If $\frac{k-1}{35} = \frac{2}{7}$, find the value of K?

- a) 10 b) 9 c) 11 d) 12

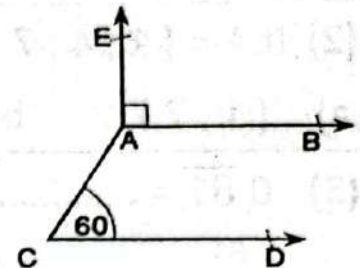
(2) The solution set of the equation $5(2X - 3) = 20$ in N ?

- a) $\{4\}$ b) $\{\frac{7}{2}\}$ c) $\{7\}$ d) $\emptyset$

(3) In the opposite figure:

$$m(\angle C) = 60^\circ, \overline{AE} \perp \overline{AB}, \overline{AB} \parallel \overline{CD}$$

Find the $m(\angle CAE)$?



- a) 60 b) 120 c) 150 d) 90

(4) If the drawing scale of a map is 1:300,000 and the distance between two points on the map is 4 cm. What is the real distance between the two points in kilometers?

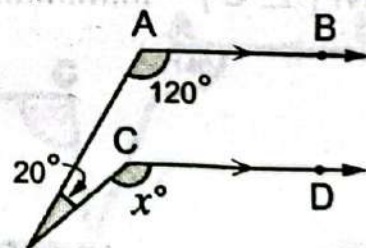
- a) 4 b) 6 c) 8 d) 12

(5) $7 - (-3) = \dots\dots\dots$

- a) 4 b) -4 c) 10 d) -10

(6) In the opposite figure:

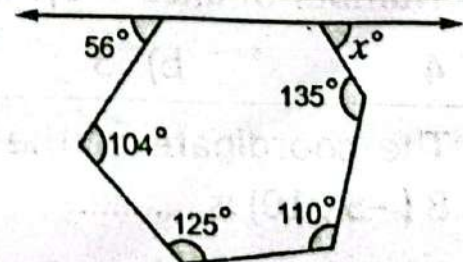
The value of X?



- a) 40° b) 60° c) 120° d) 140°

(7) In the opposite figure:

The value of X?



- a) 114° b) 76° c) 132° d) 48°

[Q3] Answer the following questions:

- [1] Alaa, Sayed, and Sherif share an amount of 1200 pounds in a ratio of 2:3:5 respectively. How much is Sayed's share of this amount?
- _____

- [2] Plot the following points in the coordinate plane:

$$D(1, -1), C(-4, -1), B(-2, 3), A(3, 3)$$

Find the area of rectangle ABCD

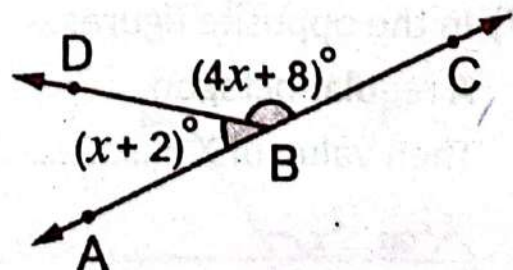
- [3] In a survey of a group of people about their favorite hobby, the results of the survey were as follows:

Hobbies	Football	Drawing	Music	Reading
Ratio	40 %	25 %	15 %	20 %

Plot the survey results in pie charts.

- [4] A car uses 7 liters of gasoline to travel a distance of 42 km. How much gasoline does the car need to travel a distance of 102 km?
- _____

- [5] If the points A, B, C are collinear
Find the value of X?



◆◆◆
End of the questions

MODEL EXAM No (12)

[Q1] Choose the correct answer:

(1) Which of the following equals -7

- a) $-35 \div 5$ b) $1 \div (-7)$ c) $0 \div (-7)$ d) $-35 \div (-5)$

(2) If the price of a product is reduced from 1500 LE to 12700 LE, what is the discount rate?

- a) 3 % b) 15 % c) 20 % d) 30 %

(3) If $X < 0$, $Y < 0$, the point $(-X, -Y)$ lies in Quadrant

- a) First b) Second c) Third d) Fourth

(4) Which of the following equations hasn't solution?

- a) $7Y = 21$ b) $7Y = 27$ c) $7Y = 35$ d) $7Y = 42$

(5) Magdy can run 75 meters in 25 seconds. If he continuous with the same speed, which of the following equations can you use to find the time (x) he needs to cover 300 meters?

- a) $\frac{75}{x} = \frac{300}{25}$ c) $\frac{75}{25} = \frac{300}{x}$
 b) $\frac{25}{x} = \frac{300}{75}$ d) $\frac{75}{25} = \frac{x}{300}$

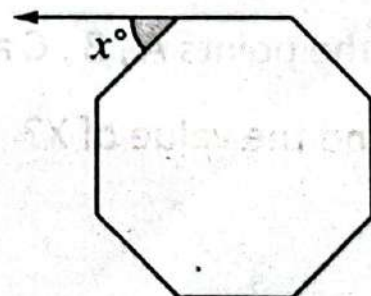
(6) The supplement of obtuse angle is

- a) Acute b) Obtuse c) Straight d) reflex

(7) In the opposite figure:

A regular octagon,

Then value of $X = \dots\dots\dots^\circ$



- a) 35 b) 45 c) 75 d) 135

[Q2] Choose the correct answer:

(1) If the sum of measure of two angles in triangle is 130° , then the measure of third angle =

- a) 20 b) 30 c) 50 d) 60

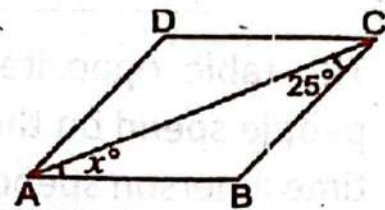
(2) Which inequality expresses that Basem needs at least 10 GB per month to complete his work on the Internet?

- a) $X < 10$ b) $X > 10$ c) $X \leq 10$ d) $X \geq 10$

(3) In the opposite figure:

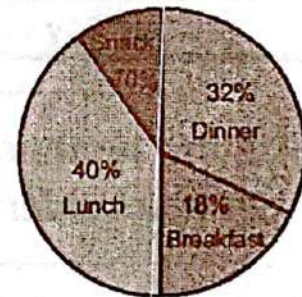
ABCD is a rhombus

The value of $X = \dots^\circ$



- a) 25 b) 50 c) 100 d) 130

(4) The opposite pie chart shows the percentage of calories Eman had in her meals on one day, if Eman had 2500 calories that day, how many calories did she have at dinner?



- a) 1000 b) 450 c) 250 d) 800

(5) The result of $X + 3Y - 4Z$, $-3Y - X - 4Z$ is

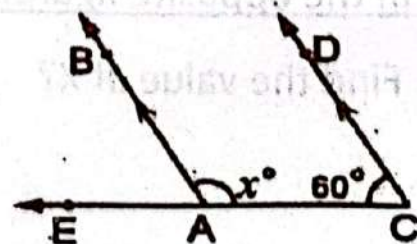
- a) Zero b) $-8Z$ c) $8Z$ d) $2X - 6Y + 8Z$

(6) If $\{4, 5, 7\} \subset \{3, X, 4, Y, 8\}$, find the value of $X + Y$?

- a) 5 b) 7 c) 8 d) 12

(7) In the opposite figure:

The value of $X = \dots^\circ$



- a) 150 b) 120 c) 110 d) 60

[Q3] Answer the following questions:

- [1] Three people participated in establishing a factory. The first paid 9,000,000 pounds, the second paid 6,000,000 pounds, and the third paid 7,500,000. The profits at the end of the first year were 2,250,000. The profits were distributed according to each of their contributions to the capital. Calculate each of their shares in the profits of the first year.

- [2] The table opposite shows the number of minutes a group of people spend on the telephone. Calculate the arithmetic mean of time a person spends on the telephone.

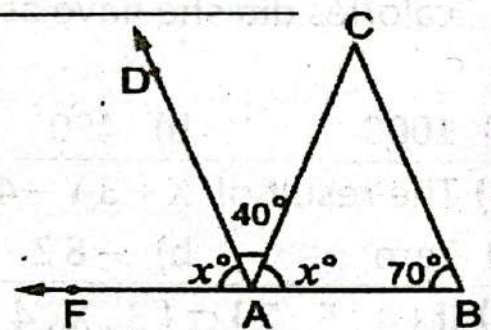
Minutes	2	3	4	5	6
frequency	12	20	36	20	12

- [3] If my mother is now three times my age, and my mother is 24 years older than me, how old are we now?

- [4] In the opposite figure:

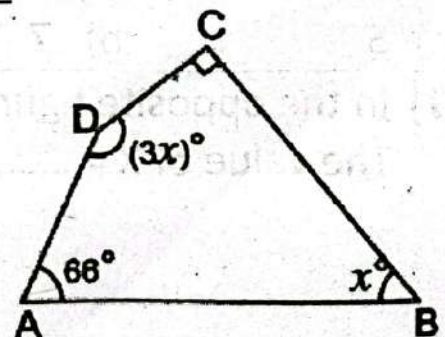
$$m(\angle CAD) = 40^\circ, m(\angle B) = 70^\circ$$

Prove that: $\overrightarrow{AD} \parallel \overrightarrow{BC}$



- [5] In the opposite figure:

Find the value of X?



◆◆◆
End of the questions

حمل الآن

مجانا وحصريا

امتحانات رقم (4)

الترم الاول



Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

30

- 1 If $a = |-5|$, $b = -7$, then $a \times b = \dots\dots\dots$.
 (a) 35 (b) -35 (c) -7 (d) 5
- 2 The number of subsets of the set $\{0, 2, 9\}$ is $\dots\dots\dots$.
 (a) 3 (b) 6 (c) 8 (d) 9
- 3 The result of subtracting $7a$ from $15a$ is $\dots\dots\dots$.
 (a) $-8a$ (b) $8a$ (c) $8a^2$ (d) $-22a$
- 4 Obtuse angle supplements $\dots\dots\dots$ angle.
 (a) acute (b) straight (c) obtuse (d) right
- 5 $2x = 2$, then $3x - 1 = \dots\dots\dots$.
 (a) 2 (b) 3 (c) 4 (d) 5
- 6 $\emptyset \dots\dots\dots \{0, 100\}$
 (a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$
- 7 If $\frac{x}{7} = \frac{10}{35}$, then $x - 3 = \dots\dots\dots$.
 (a) -1 (b) 1 (c) 2 (d) -2
- 8 If L_1 and L_2 are to coplanar straight lines, $L_1 \perp L_3$ and $L_2 \perp L_3$ then $\dots\dots\dots$
 (a) $L_1 \parallel L_2$ (b) $L_1 \perp L_2$ (c) L_1 intersects L_2 (d) L_1 is coincides L_2
- 9 If the origin point is the midpoint of AB and A located in the 2nd quadrant, in which quadrant is point B located?
 (a) 1st quadrant (b) 3rd quadrant
 (c) 2nd quadrant (d) 4th quadrant



FOLLOW US

Q2: ANSWER THE FOLLOWING

(21 marks)

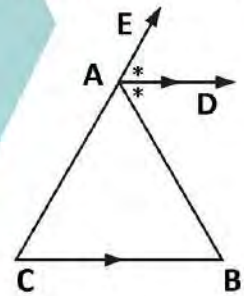
- 1** A building of height 80m was pictured by a scale 1 : 2,000
Find the height of this building in the picture.

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- 2** $\overrightarrow{AD} \parallel \overrightarrow{CB}$, $\overrightarrow{AD}$ bisects $\angle BAE$
 $m(\angle B) = 52^\circ$,
 Find $m(\angle BAD)$, $m(\angle C)$



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- 3** Murad deposit 75,000 L.E in Al-Ahly bank, with annual interest 23%
Find the total amount which he gets at the end of one year.

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- 4** Find the S.S of $a + 5a - 2 = 2(3 - a)$ in Q

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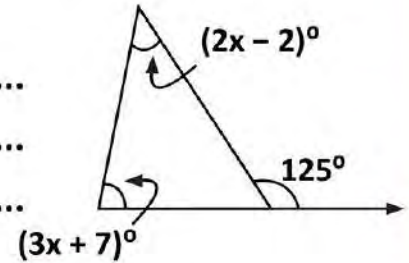
FOLLOW US

5 Find value of x:

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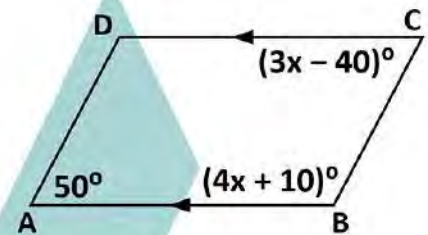


6 In the opposite figure:
Prove that ABCD is a parallelogram.

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7 The following data represents the number of shirts sold by clothes shop over 30 days.

13	32	12	33	27	37	44	8	26	32
36	41	45	9	38	16	46	48	29	15
13	32	14	18	28	34	25	7	18	33

Represent these data using a stem-and-leaf plot,
The find the median and the mode.

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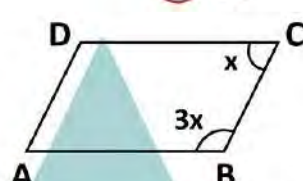
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FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 If $2ab = 10$, then $3ab = \dots\dots\dots$.
 (a) 5 (b) 6 (c) 15 (d) 30
- 2 In the opposite figure:
 ABCD is a parallelogram, then $m(\angle A) \dots\dots\dots$.

 (a) 30° (b) 45° (c) 60° (d) 135°
- 3 In the parallelogram, each two consecutive angles are
 (a) complementary (b) equal in measure (c) supplementary (d) reflex
- 4 If C(-3 , y) is the midpoint of AB where A(x , -6) and B(1 , -8), then $x + y = \dots\dots\dots$.
 (a) -11 (b) 11 (c) -18 (d) -14
- 5 {1 , 2 , 3 , 5 , 7 , 13} the set of prime number
 (a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$
- 6 Triangle consists of two angles at least
 (a) acute (b) obtuse (c) right (d) reflex
- 7 $-3 \frac{1}{4} \times \dots\dots\dots = 1$
 (a) $\frac{13}{4}$ (b) $\frac{4}{13}$ (c) $\frac{-4}{13}$ (d) $\frac{-13}{4}$
- 8 $4x$ increases ($-4x$) by
 (a) zero (b) $8x$ (c) $-8x$ (d) $16x$
- 9 If the length in drawing is 3 cm, and the length in real is 18 m,
 Then the drawing scale is
 (a) 1 : 6,000 (b) 1 : 600
 (c) 1 : 60 (d) 1 : 6

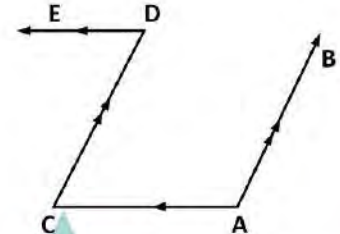


FOLLOW US

Q2: ANSWER THE FOLLOWING

(21 marks)

- 1 $\overrightarrow{DE} \parallel \overrightarrow{AC}$, $\overrightarrow{AB} \parallel \overrightarrow{DC}$, $m(\angle A) = 110^\circ$
Find $m(\angle C)$, $m(\angle D)$



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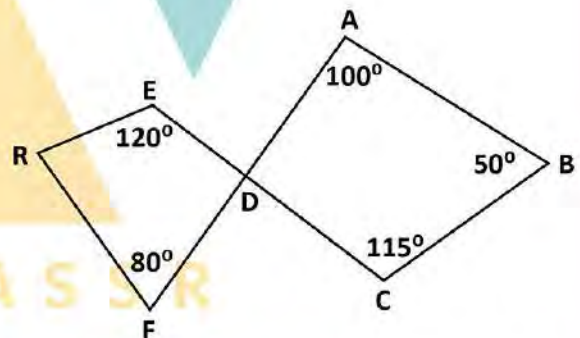
- 2 If $X = \{ 7, 5, 4, 1 \}$, $Y = \{ 9, 4, 5, 2 \}$, $Z = \{ 2, 10 \}$, Find:

a $X \cap Y = \dots\dots\dots$

b $Y \cup Z = \dots\dots\dots$

c $\{ 4, 5, 6 \} \dots\dots\dots Y$

- 3 $AF \cap CE = \{ D \}$, $m(\angle A) = 100^\circ$
 $m(\angle C) = 115^\circ$, $m(\angle B) = 50^\circ$
 $m(\angle F) = 80^\circ$, $m(\angle E) = 120^\circ$
Find $m(\angle R)$



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- 4 A picture of a building is taken with a drawing scale 1 : 100, if the height of the building in the picture is 3 cm,
What is its real height?

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FOLLOW US

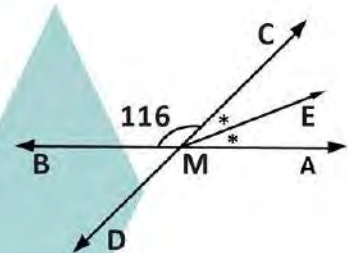
5 $0.\bar{6} - (-\frac{1}{6}) = 25\% + y$, Find the value of y

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6 $\overleftrightarrow{AB} \cap \overleftrightarrow{CD} = \{M\}$, $m(\angle CMB) = 116^\circ$
 $\overrightarrow{ME}$ bisects $\angle AMC$
 Find: $m(\angle AMD)$, $m(\angle AMC)$, $m(\angle AME)$



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7 In the opposite stem and leaf plot:
 Write all the data
 Find the mode, median, Q1, and Q3

Stems	Leaves
4	1 1 2
5	2 3
6	2 2 2
7	1 3 5

Key | 4 | 1 meas 41

AHMED NASSR
MATH TEACHER

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FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

30

- 1 In the parallelogram, each two opposite angles are
 (a) complementary (b) equal in measure (c) supplementary (d) reflex
- 2 The sum of $x + 2y - 3z$ and $-2y - x - 3z$ is
 (a) $-6z$ (b) zero (c) $6z$ (d) $2x - 4y + 6z$
- 3 The projection of the point $(-3, 5)$ on x-axis is
 (a) $(5, -3)$ (b) $(0, 5)$ (c) $(-3, 0)$ (d) $(3, -5)$
- 4 Drawing > 1 , then it expresses
 (a) reduction (b) minimization (c) enlargement (d) otherwise
- 5 In parallelogram XYZL, if $m(\angle X) = m(\angle Y)$, Then $m(\angle Y) = \dots\dots\dots^\circ$.
 (a) 120 (b) 45 (c) 90 (d) 180
- 6 If $a + b = 0$, where $a \neq b$, then $a \times b \dots\dots\dots$ zero.
 (a) $>$ (b) $<$ (c) $=$ (d) $\geq$
- 7 Three times a number is 27, then $\frac{1}{3}$ this number =
 (a) 9 (b) 12 (c) 27 (d) 3
- 8 If $X \subset Y$, Then $X \cap Y = \dots\dots\dots$.
 (a) X (b) Y (c) $X \cup Y$ (d) otherwise
- 9 If two straight lines intersect, then each two vertically angles are
 (a) supplementary (b) adjacent
 (c) equal in measure (d) complementary



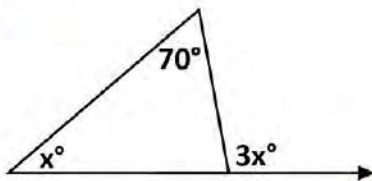
FOLLOW US

Q2: ANSWER THE FOLLOWING

(21 marks)

1 Find the value of x of the following:

a



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2 Find the S.S of the following equations in N :

a $6x - 2x + 7 = 4$

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b $4(x - 1) = 3(x + 1)$

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3 ABC is a triangle in which the ratio between its angles is $5 : 7 : 8$, Find the measure of each angle.

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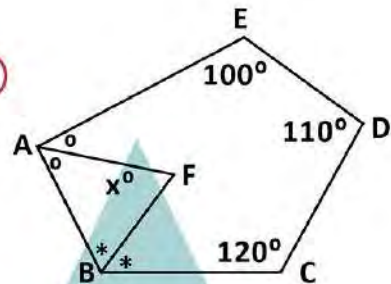
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4 Three consecutive odd numbers whose sum is 213, what are there numbers?

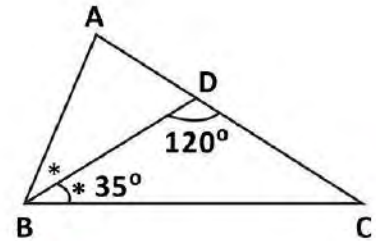
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- 5** In the opposite figure:
BD bisects $\angle ABC$, $m(\angle DBC) = 35^\circ$
 $m(\angle BDC) = 120^\circ$
Find: $m(\angle A)$



- 6** If the scale on the map is 1 : 600,000 and the distance between two points on the map is 4.5 cm, Find the real distance between the two points

- 7** Write the expression: $7m - 3n - 5m + 4n$ in its simplest form

AHMED NASSR
MATH TEACHER

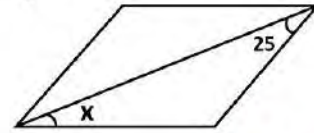


FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

30



1 In opposite figure:

ABCD is a rhombus what is the value of x?

- (a) 25° (b) 50° (c) 100° (d) 130°

2 -3 exceeds 5 by amount of

- (a) -8 (b) -2 (c) 2 (d) 8

3 The centre of the first set of the sets : 7-, 13-, 19-, 25- is

- (a) 6 (b) 7 (c) 10 (d) 13

4 The zero angle complements angle.

- (a) zero (b) acute (c) obtuse (d) right

5 The solution set of the equation $4x = -12$ in N is

- (a) $\{-3\}$ (b) $\{3\}$ (c) $\emptyset$ (d) $\{0\}$

6 The sum of measures of the interior angles of any quadrilateral equals

- (a) 270° (b) 360° (c) 180° (d) 90°

7 If $(3, m - 2)$ lies on the X-axis, what is the value of m?

- (a) -3 (b) -2 (c) 2 (d) 3

8 If two ratio equal, then the product of extremes the product of means

- (a) less than (b) equals (c) greater than (d) otherwise

9 Which of the following equations is equivalent to the equation $x + 3 = 12$

- (a) $x - 3 = -12$ (b) $x + (-3) = 12$
(c) $x - (-3) = 12$ (d) $x - (-3) = -12$



FOLLOW US

Q2: ANSWER THE FOLLOWING

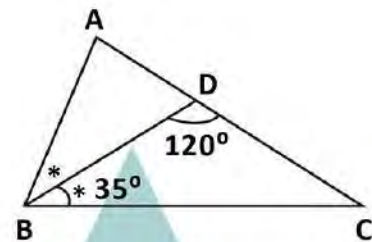
(21 marks)

1 In the opposite figure:

BD bisects $\angle ABC$, $m(\angle DBC) = 35^\circ$

$m(\angle BDC) = 120^\circ$

Find: $m(\angle A)$



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2 A man passed away, leaving 150,000 L.E for his wife, two sons and one daughter, If his wife's share is $\frac{1}{8}$ of the total amount, and the remaining sum is to be distributed among his children, What is the share of each son and the daughter, If the share of the son is twice the share of the daughter.

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3 In the opposite table, the measure of circular sector of Handball sector is $^\circ$.

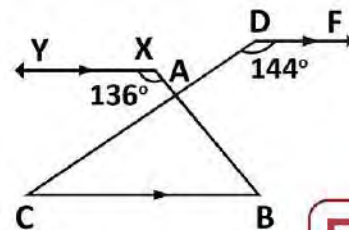
Sports	Football	Handball	Tennis
frequency	140	360	100

4 In the opposite figure :

$BC \parallel DF \parallel XY$

$m(\angle D) = 144^\circ$, $m(\angle X) = 136^\circ$

Find with proof: $m(\angle BAC)$



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FOLLOW US

- 5** Alaa purchased a mobile phone for 16,600 L.E and sold it for 17,762 L.E
Calculate the percent of Alaa's profit.

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- 6** If $X = \{ 5, 1, 7, 9 \}$, $Y = \{ 9, 3, 7, 2 \}$, $Z = \{ 7, 5 \}$, Find:

a $X \cap Y = \dots\dots\dots$

b $Y \cup Z = \dots\dots\dots$

- 7** Find the S.S of the following equations in Q:

a $4(x + 1) = 2(x - 1)$

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b $3x + 6 = 30 - 5x$

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Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 The additive inverse of $(-3)^{\text{zero}}$ is
 (a) -1 (b) 1 (c) 3 (d) -3
- 2 The decrease of $-3ab$ than $2ab$ is
 (a) $-ab$ (b) ab (c) $-5ab$ (d) $5ab$
- 3 $-m + m = 0$ is called property
 (a) identity (b) inverse (c) distributive (d) closure
- 4 For a set of values: if $\bar{X} = 50$ and $\sum (f \cdot x) = 2,500$, what is the value of $\sum f$?
 (a) 125,000 (b) 2,550 (c) 50 (d) 2,450
- 5 If the ratio of two complementary angles is 7 : 11, then the measure of the smaller angle is
 (a) 145° (b) 70° (c) 90° (d) 35°
- 6 If $x < 0$ and $y > 0$, in which quadrant is the point $(x, -y)$ located?
 (a) 1st quadrant (b) 2nd quadrant (c) 3rd quadrant (d) 4th quadrant
- 7 If angle measure Y complements an angle of measure
 (a) $180^\circ - Y$ (b) $90^\circ - Y$ (c) $180^\circ + Y$ (d) $90^\circ + Y$
- 8 The sum of lengths of any two sides of a triangle the length of the third side
 (a) $>$ (b) $=$ (c) $<$ (d) $\geq$
- 9 If the original price of a mobile is 17,700 LE, then its sale price after apply a discount 12% is
 (a) 2,124 (b) 19,824
 (c) 15,576 (d) 15,756



FOLLOW US

Q2: ANSWER THE FOLLOWING

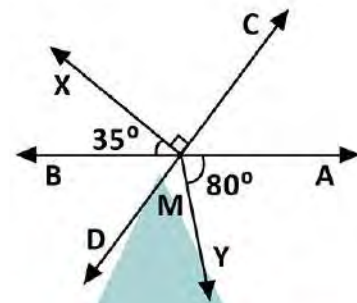
(21 marks)

1 In the opposite figure:

$$AB \cap CD = \{M\}, m(\angle CMX) = 90^\circ$$

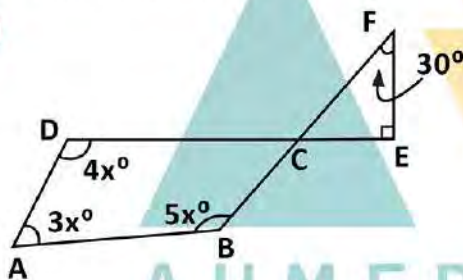
$$m(\angle XMB) = 35^\circ, m(\angle AMY) = 80^\circ$$

Find: $m(\angle AMD)$, $m(\angle BMY)$

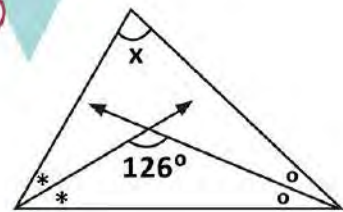


2 Find the value of x:

a



b



3 Find the S.S of the following equations in N:

a $-2(x + 1) = 3$

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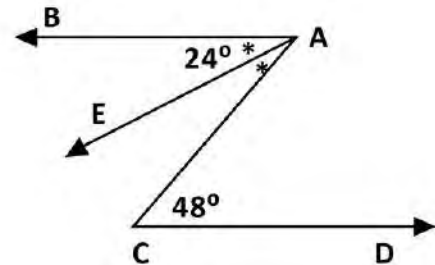
b $3(x - 2) = 5x - 10$

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FOLLOW US

- 4** In the opposite figure:
 AE bisects $\angle BAC$, $m(\angle BAE) = 24^\circ$
 $m(\angle ACD) = 48^\circ$
 Prove that: $AB \parallel CD$



- 5** Murad deposit 75,000 L.E in Al-Ahly bank, with annual interest 23%
 Find the total amount which he gets at the end of one year.

- 6** If ABCD is a parallelogram where A(-1 , 1), B(4 , 2), and D(1 , 4)
 Determine the coordinates of the following:

- a** The point of intersection of its diagonal **b** The vertex C

- 7** The following data represents the number of shirts sold by clothes shop over 30 days.

11	35	14	31	27	32	45	7	22	22
36	22	45	9	38	16	46	42	29	15
15	32	14	48	38	34	22	7	18	33

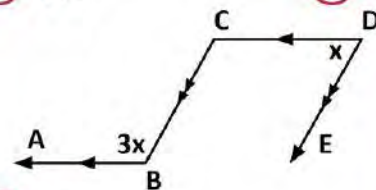
Represent these data using a stem-and-leaf plot,
 The find the median and the mode.



Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 In the quadrilateral ABCD, If $m(\angle A) = 3 m(\angle B) = m(\angle C) = 120^\circ$, then $m(\angle D) = \dots\dots\dots$
 - a 60°
 - b 40°
 - c 80°
 - d 160°
- 2 The additive identity is $\dots\dots\dots$
 - a 0
 - b 1
 - c -1
 - d 2
- 3 If $x + 3 = 5$, $x \in \mathbb{Z}^-$, Then the solution set is $\dots\dots\dots$
 - a $\{-3\}$
 - b $\{5\}$
 - c $\{-5\}$
 - d $\emptyset$
- 4 If 0.8 , x , 4 and 5 are in a proportion, then $x = \dots\dots\dots$
 - a 0.1
 - b 2
 - c 1
 - d 0.2
- 5 If $\frac{|a|}{7} = 6$, then $a = \dots\dots\dots$
 - a 24
 - b -42
 - c 42
 - d ± 42
- 6 If $m(\angle A) = 46^\circ$, then $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$
 - a 44
 - b 134
 - c 314
 - d 360
- 7 In the triangle ABC, $\frac{AB + BC}{AC} \dots\dots\dots 1$
 - a $>$
 - b $=$
 - c $=$
 - d $\geq$
- 8 If the arithmetic mean of the values 5, 4, 8, a, $a + 4$ is 21, then $a = \dots\dots\dots$
 - a 29
 - b 42
 - c 105
 - d 21
- 9 In the opposite figure:
 $CD \parallel BA$, $DE \parallel CB$, then: $x = \dots\dots\dots$



- a 60°
- b 45°
- c 120°
- d 90°



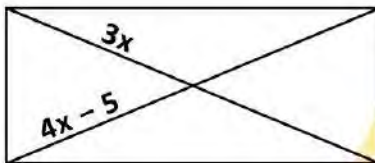
FOLLOW US

Q2: ANSWER THE FOLLOWING

(21 marks)

1 Find the value of x:

a

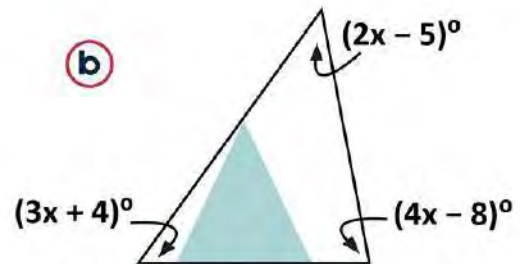


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b



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2 A shopkeeper bought some goods for 45,000 L.E. He spent 5,000 L.E to transport them. He sold these goods for 62,500 L.E, Find percentage of profit

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3 Write the following expressions in the simplest form:

a

$$-5x - 7y - 7x - 2y + 7y - 3x$$

b

$$2(3x - 4) - 3(x - 2)$$

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4 By using multiplicative properties, Find the value of each of the following:

$$\frac{3}{4} \times 35 + 35 \times \frac{1}{2} - 35 \times \frac{1}{4}$$

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FOLLOW US

- 5** A butterfly is of length 3.75 mm, Find the drawing scale if its photo length is 0.027 m

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- 6** In the triangle ABC, where the length of AB is 5 cm and the length of BC is 7 cm. What the smallest possible integer value for the length AC?

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- 7** In the opposite stem and leaf plot:
Write all the data
Find the mode, median, Q1, and Q3

Stems	Leaves
2	1 1 2
3	2 3
4	2 2 2
5	1 3 5

Key | 2|3 meas 3.2

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Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

1 The arithmetic mean of the values 3, 4, 8, a, a + 2 is 15, then a =

- (a) 29 (b) 58 (c) 75 (d) 17

2 If the two vertically angles are complementary angles, the the measure of each angle is

- (a) 45° (b) 50° (c) 180° (d) 90°

3 The additive inverse of $x - 5$ is

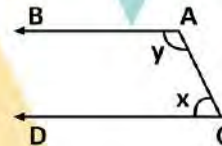
- (a) $x - 5$ (b) $-x - 5$ (c) $-x + 5$ (d) 5

4 If the ratio 7 : 13 is the same ratio $x : 52$, then $x = \dots\dots\dots$

- (a) 14 (b) 21 (c) 28 (d) 35

5 In the opposite figure:

$\overrightarrow{AB} \parallel \overrightarrow{CD}$, $\frac{x}{y} = \frac{7}{11}$, what is the of x?



- (a) 60° (b) 70° (c) 100° (d) 110°

6 If $A = \{ 5, 7, 2 \}$, Then 57 A

- (a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$

7 If $\angle X$ complements $\angle Y$, $m(\angle X) = 2m(\angle Y)$, then $m(\angle Y) = \dots\dots\dots$

- (a) 45° (b) 30° (c) 60° (d) 90°

8 $8 + (-10) > \dots\dots\dots$

- (a) 2 (b) -2 (c) 0 (d) -4

9 From the following stem-and-leaf plot, the mode =

- (a) 4
(c) 8

Stems	Leaves
2	1 1 3 5 6
3	3 4 4 5 6
4	7 8 8 8 9
5	0 1 3 5 7

- (b) 48
(d) 34



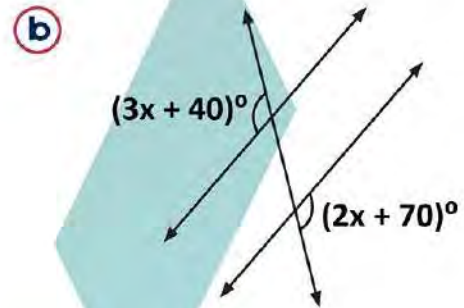
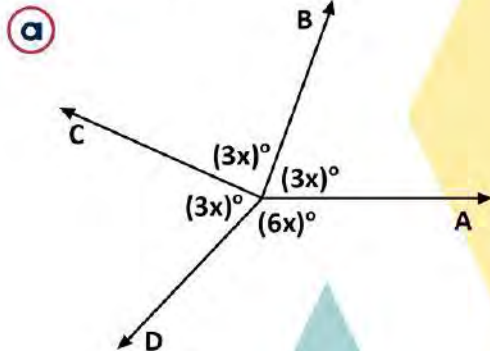
Q2: ANSWER THE FOLLOWING (21 marks)

1 If $X = \{ 1, 3, 7, 5 \}$, $Y = \{ 9, 4, 6, 2 \}$ Find:

a $X \cap Y = \dots\dots\dots$

b $Y \cup X = \dots\dots\dots$

2 Find value of x:



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3 Divide 3,600 L.E among three persons such as that ratio between the share of first person to second person is 4 : 3 and the share of the third is half the share of first.

Find the share of each person.

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4 $2a^2 - 3ab - 5b^2$ decreases $4a^2 + 3b^2 + ab$ by

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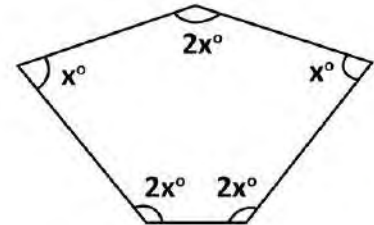
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- 5** In the opposite figure :
Find with giving reason
The value of X

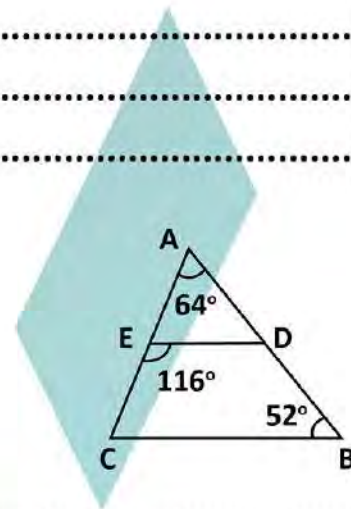


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- 6** In the opposite figure:
In the ABC, $m(\angle A) = 64^\circ$, $m(\angle B) = 52^\circ$
, $m(\angle DEC) = 116^\circ$
, $E \in AC$, $D \in AB$
Prove that: $ED \parallel CB$



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- 7** The following data represents the number of shirts sold by clothes shop over 30 days.

13	32	12	33	27	37	44	8	26	32
36	41	45	9	38	16	46	48	29	15
13	32	14	18	28	34	25	7	18	33

Represent these data using a stem-and-leaf plot,
The find the median and the mode.

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FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 The length of the projection of a line segment on a straight line the length of the main line segment.
 (a) $>$ (b) $=$ (c) $<$ (d) $\leq$
- 2 The numbers 5, 4, can be lengths of sides of a triangle.
 (a) 8 (b) 9 (c) 10 (d) 12
- 3 "The sum of three consecutive odd numbers is 87" as equation is
 (a) $3x = 87$ (b) $3x + 3 = 87$ (c) $3x + 4 = 87$ (d) $3x + 6 = 87$
- 4 If $\angle A$ complements $\angle B$ and $m(\angle A) = \frac{2}{3} m(\angle B)$, then $m(\angle B) = \dots\dots\dots^\circ$
 (a) 18 (b) 36 (c) 54 (d) 90
- 5 If $x < 0$ and $y > 0$, in which quadrant is the point $(x, -y)$ located?
 (a) 1st quadrant (b) 2nd quadrant (c) 3rd quadrant (d) 4th quadrant
- 6 $2x^2 + 4x^2 = \dots\dots\dots$
 (a) $6x^4$ (b) $6x^2$ (c) $8x^2$ (d) $8y^4$
- 7 Which of the following drawing scales represent enlargement?
 (a) 1 : 20 (b) 5 : 23 (c) 7 : 3 (d) 4 : 35
- 8 If $\frac{x+4}{6} = \frac{7}{14}$, The $x = \dots\dots\dots$
 (a) -7 (b) 7 (c) -1 (d) 1
- 9 If two adjacent sides of a parrallelogram are equal in length, then becomes
 (a) a square (b) a rhombus
 (c) a rectangle (d) a trapezium



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Q2: ANSWER THE FOLLOWING (21 marks)

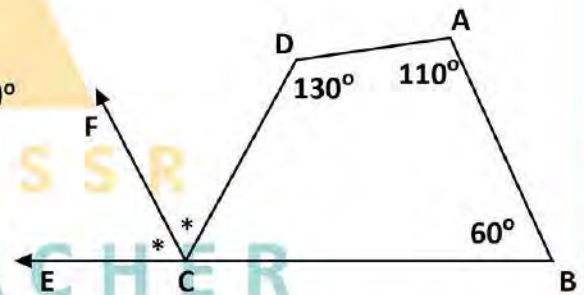
- 1** A TV price after deduction rate of 16% is 12,600 L.E,
What is the TV price before the deduction?

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- 2** In triangle XYZ, where the length of XY is 8 cm, and the length of YZ is 5 cm
What is the smallest integer that can represent the length of the third side?

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- 3** In the opposite figure:
 $m(\angle A) = 110^\circ$, $m(\angle D) = 130^\circ$, $m(\angle B) = 60^\circ$
, $E \in BC$, CF bisects $\angle DCE$



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- 4** Find the S.S in Q of the following equation:

$$\frac{5}{4 + 4x} = \frac{3}{1 - 2x}$$

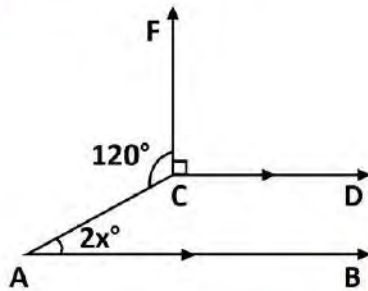
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5 Find the value of x :

a



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6 In the opposite figure:

Point C is the midpoint of AB

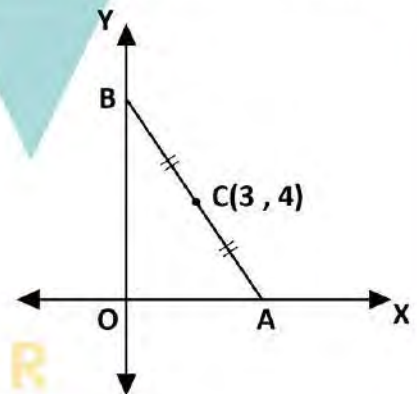
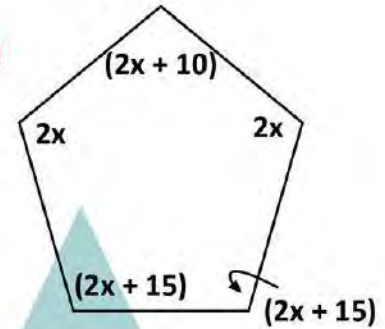
Find the coordinates of each of A and B

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b



7 In a survey for Prep 1 students about their favorite color, Represent the following table by Pie chart.

Colors	Red	Blue	Green	Yellow
Percentage	25%	30%	10%	35%

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FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 $7x + 5y + z$ increases $2x - y + z$ by
 (a) $5x + 4y + 2z$ (b) $5x + 6y$ (c) $9x + 4y$ (d) $9x - 6y - 2z$
- 2 If the mean of the following set of data $x + 1$, 8 , $2x + 4$, $x - 5$, $x + 2$ is 7
 Then the value of $x =$
 (a) 8 (b) 5 (c) 3 (d) 2
- 3 ABCD is a parallelogram in which: $m(\angle A) + m(\angle C) = 140^\circ$, then $m(\angle B) =$
 (a) 40° (b) 70° (c) 110° (d) 220°
- 4 The first proportional of 12 , 3 and 4 is
 (a) 15 (b) 9 (c) 7 (d) 3
- 5 The multiplicative identity is
 (a) 0 (b) 1 (c) -1 (d) 2
- 6 The two straight line perpendicular to a third straight line in the same plane are
 (a) perpendicular (b) intersecting (c) parallel (d) coincident
- 7 $k + k + k =$
 (a) k^3 (b) $3k$ (c) $3k^3$ (d) $k + 3$
- 8 The result of subtracted $\frac{-5}{7}$ from $\frac{3}{14}$ equals
 (a) $\frac{3}{14}$ (b) $\frac{13}{14}$ (c) $\frac{-1}{2}$ (d) $\frac{1}{2}$
- 9 A sum of money 420 L.E was distributed between Murad and Farida in the ratio $2 : 5$, then the share of Farida is L.E
 (a) 120 (b) 300
 (c) 280 (d) 720



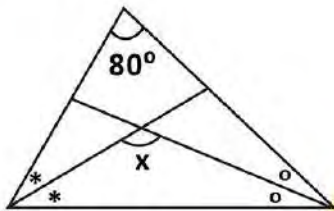
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Q2: ANSWER THE FOLLOWING

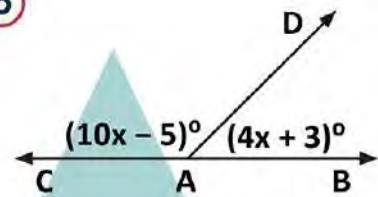
(21 marks)

1 Find the value of x :

a



b



2 If the point $(a - 2, 3a + 9)$ lies on x-axis, determine the quarter in which the point $(a, 6 - a)$ is located

3 The difference between two natural numbers is 5 and their sum is 21
What are the two numbers?

4 When does a quadrilateral become a parallelogram? List 3 cases



FOLLOW US

- 5** A father distributed 225 L.E among his three sons. The share of the first was third of the sum and the ratio between the share of second and the share of third is 2 : 3,
Find the share of each of them.

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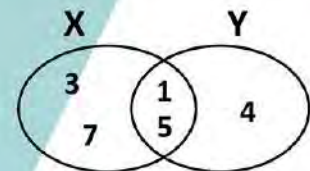
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- 6** In the opposite figure:

$X = \dots\dots\dots$ $Y = \dots\dots\dots$

$X \cap Y = \dots\dots\dots$

$X \cup Y = \dots\dots\dots$



- 7** The opposite table represents hours of work of 100 workers.

No. of hours (x)	4	6	7	8	9	10	13
No. of workers (f)	15	13	30	m	10	8	2

Find the value of m, then find mean of the hours of work

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Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 The lengths of two side of an isosceles triangle are 3 cm and 7 cm, Then the third side could be cm
 (a) 3 (b) 4 (c) 5 (d) 7
- 2 If $5x + 8x + 2x + 4x = 114$, then $5x + 3 = \dots\dots\dots$
 (a) 33 (b) 35 (c) 47 (d) $8x$
- 3 If $x \div y = 1$, then $x = \dots\dots\dots$
 (a) 1 (b) x (c) y (d) 0
- 4 If $a : b : c = 4 : 5 : 3$, and $b - c = 9$, Then the value of $a = \dots\dots\dots$
 (a) 9 (b) 18 (c) 15 (d) 21
- 5 If $\frac{x}{y} = \frac{5}{7}$, then $\frac{7x}{5y} = \dots\dots\dots$
 (a) $\frac{5}{7}$ (b) 1 (c) $\frac{7}{5}$ (d) $\frac{1}{5}$
- 6 For a set of values: if $\bar{X} = 20$ and $\sum (f \cdot x) = 2,500$, what is the value of $\sum f$?
 (a) 50,000 (b) 5,000 (c) 1,250 (d) 125
- 7 If the real length of an insect is 0.7 mm. and its length after magnification is 6.3 cm then the ratio of magnification is
 (a) 9 : 1 (b) 90 : 1 (c) 900 : 1 (d) 9,000 : 1
- 8 If a straight line cuts two parallel straight lines, then each two interior angles are
 (a) complementary (b) perpendicular (c) supplementary (d) equal in measure
- 9 The sum of supplementary angles equals the sum of the measures of angles.
 (a) 2 right (b) 4 right
 (c) 3 right (d) 5 right



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Q2: ANSWER THE FOLLOWING (21 marks)

- 1 Murad earns a monthly salary of 7,000 L.E, and the employees' salaries were increased by the rate 15%. What is Murad's salary after the increase and what the amount of the increase?

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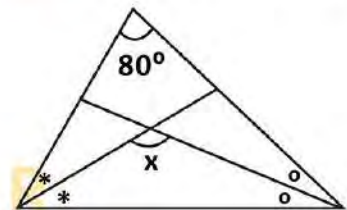
- 2 What is the increase of the expression: $4k - 3n + 2m$ than $5k + m - 2n$

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- 3 In the opposite figure:
Find the value of x



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- 4 Three consecutive numbers whose sum is 213, what are there numbers?

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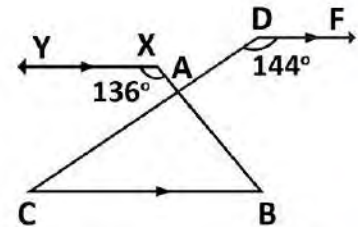
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FOLLOW US

- 5** In the opposite figure :
 $BC \parallel DF \parallel XY$
 $m(\angle D) = 144^\circ$, $m(\angle X) = 136^\circ$
 Find with proof: $m(\angle BAC)$



.....

- 6** ABCD is a quadrilateral where, $A(-3, -2)$, $B(2, -2)$, $C(4, 2)$ and $D(-2, 2)$
 Is it a parallelogram or not?

.....

- 7** If the colours preferred by 55 students in fourth grade are given in the opposite table

Use a pie chart to represent this data

Colours	Red	Yellow	Black
frequency	18	24	18

.....

اللهم اجعل هذا العمل خالصا لوجهك الكريم
 واكتب له القبول والنفع يا كريم يا وهَّاب.



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Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

30

- 1 If $a = |-5|$, $b = -7$, then $a \times b = \dots\dots\dots$.
☐ a 35 ☒ b -35 ☐ c -7 ☐ d 5
- 2 The number of subsets of the set $\{0, 2, 9\}$ is $\dots\dots\dots$.
☐ a 3 ☐ b 6 ☒ c 8 ☐ d 9
- 3 The result of subtracting $7a$ from $15a$ is $\dots\dots\dots$.
☐ a $-8a$ ☒ b $8a$ ☐ c $8a^2$ ☐ d $-22a$
- 4 Obtuse angle supplements $\dots\dots\dots$ angle.
☒ a acute ☐ b straight ☐ c obtuse ☐ d right
- 5 $2x = 2$, then $3x - 1 = \dots\dots\dots$.
☒ a 2 ☐ b 3 ☐ c 4 ☐ d 5
- 6 $\emptyset \dots\dots\dots \{0, 100\}$
☐ a $\in$ ☐ b $\notin$ ☒ c $\subset$ ☐ d $\not\subset$
- 7 If $\frac{x}{7} = \frac{10}{35}$, then $x - 3 = \dots\dots\dots$.
☒ a -1 ☐ b 1 ☐ c 2 ☐ d -2
- 8 If L_1 and L_2 are to coplanar straight lines, $L_1 \perp L_3$ and $L_2 \perp L_3$ then $\dots\dots\dots$
☒ a $L_1 \parallel L_2$ ☐ b $L_1 \perp L_2$ ☐ c L_1 intersects L_2 ☐ d L_1 is coincides L_2
- 9 If the origin point is the midpoint of AB and A located in the 2nd quadrant, in which quadrant is point B located?
☐ a 1st quadrant ☐ b 3rd quadrant
☐ c 2nd quadrant ☒ d 4th quadrant



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Q2: ANSWER THE FOLLOWING

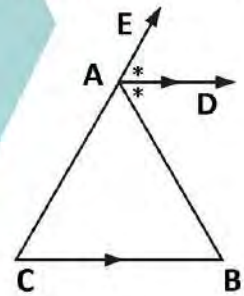
(21 marks)

- 1 A building of height 80m was pictured by a scale 1 : 2,000
Find the height of this building in the picture.

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.....
.....

4 cm

- 2 $\overrightarrow{AD} \parallel \overrightarrow{CB}$, $\overrightarrow{AD}$ bisects $\angle BAE$
, $m(\angle B) = 52^\circ$,
Find $m(\angle BAD)$, $m(\angle C)$



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BAD = 52

C = 52

- 3 Murad deposit 75,000 L.E in Al-Ahly bank, with annual interest 23%
Find the total amount which he gets at the end of one year.

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.....

92,250 L.E

- 4 Find the S.S of $a + 5a - 2 = 2(3 - a)$ in Q

.....
.....
.....

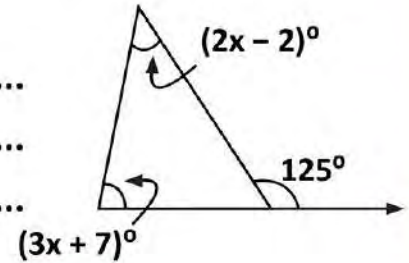
S.S = { 2 }



FOLLOW US

5 Find value of x:

.....
 $x = 24^\circ$



6 In the opposite figure:
Prove that ABCD is a parallelogram.

$$\therefore DC \parallel AB$$

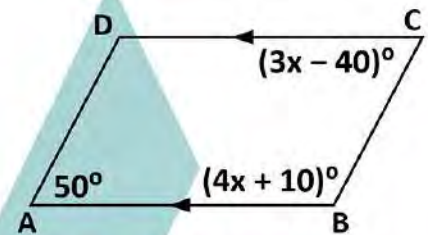
$$\therefore m(\angle C) + m(\angle B) = 180^\circ \text{ (interior)} \quad \therefore m(\angle B) + m(\angle A) = 180^\circ \text{ (they are in interior position)}$$

$$\therefore x + 20 + 5x - 20 = 180^\circ$$

$$\therefore 6x = 180, \text{ So } x = 30^\circ$$

$$\therefore DA \parallel CB$$

$$\therefore ABCD \text{ is a parallelogram}$$



7 The following data represents the number of shirts sold by clothes shop over 30 days.

13	32	12	33	27	37	44	8	26	32
36	41	45	9	38	16	46	48	29	15
13	32	14	18	28	34	25	7	18	33

Represent these data using a stem-and-leaf plot,
The find the median and the mode.

Stems	Leaves
0	7 8 9
1	2 3 3 4 5 6 8 8
2	5 6 7 8 9
3	2 2 2 3 3 4 6 7 8
4	1 4 5 6 8

Mode = 32

Median = 28.5



FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

1 If $2ab = 10$, then $3ab = \dots\dots\dots$

☐ a 5

☐ b 6

☒ c 15

☐ d 30

2 In the opposite figure:

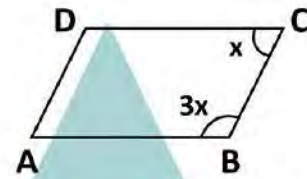
ABCD is a parallelogram, then $m(\angle A) \dots\dots\dots$

☐ a 30°

☒ b 45°

☐ c 60°

☐ d 135°



3 In the parallelogram, each two consecutive angles are

☐ a complementary ☐ b equal in measure ☒ c supplementary ☐ d reflex

4 If $C(-3, y)$ is the midpoint of AB where $A(x, -6)$ and $B(1, -8)$, then $x + y = \dots\dots\dots$

☐ a -11

☐ b 11

☐ c -18

☒ d -14

5 $\{1, 2, 3, 5, 7, 13\} \dots\dots\dots$ the set of prime number

☐ a $\in$

☐ b $\notin$

☐ c $\subset$

☒ d $\not\subset$

6 Triangle consists of two

☒ a acute

☐ b obtuse

☐ c right

☐ d reflex

7 $-3 \frac{1}{4} \times \dots\dots\dots = 1$

☐ a $\frac{13}{4}$

☐ b $\frac{4}{13}$

☒ c $-\frac{4}{13}$

☐ d $-\frac{13}{4}$

8 $4x$ increases $(-4x)$ by

☐ a zero

☒ b $8x$

☐ c $-8x$

☐ d $16x$

9 If the length in drawing is 3 cm, and the length in real is 18 m,
Then the drawing scale is

☐ a 1 : 6,000

☒ b 1 : 600

☐ c 1 : 60

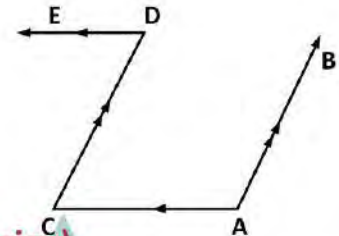
☐ d 1 : 6



FOLLOW US

Q2: ANSWER THE FOLLOWING

(21 marks)



- 1** $\overrightarrow{DE} \parallel \overrightarrow{AC}$, $\overrightarrow{AB} \parallel \overrightarrow{DC}$, $m(\angle A) = 110^\circ$
Find $m(\angle C)$, $m(\angle D)$

$$\therefore AB \parallel CD$$

$$\therefore m(\angle C) = 180 - 110 = 70^\circ \text{ (interior)}$$

$$\therefore CA \parallel DE$$

$$\therefore m(\angle D) = m(\angle C) = 70^\circ \text{ (alternate)}$$

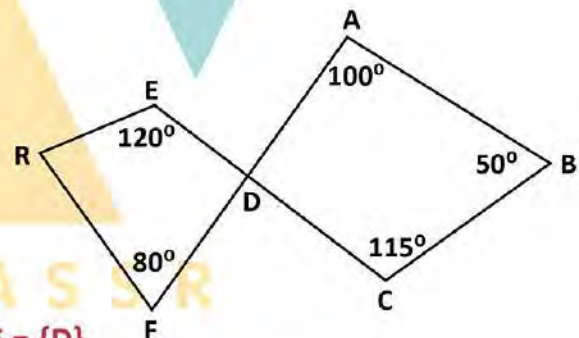
- 2** If $X = \{ 7, 5, 4, 1 \}$, $Y = \{ 9, 4, 5, 2 \}$, $Z = \{ 2, 10 \}$, Find:

a $X \cap Y = \{ 5, 4 \}$

b $Y \cup Z = \{ 9, 4, 5, 2, 10 \}$

c $\{ 4, 5, 6 \} \not\subset Y$

- 3** $AF \cap CE = \{ D \}$, $m(\angle A) = 100^\circ$
 $m(\angle C) = 115^\circ$, $m(\angle B) = 50^\circ$
 $m(\angle F) = 80^\circ$, $m(\angle E) = 120^\circ$
Find $m(\angle R)$



$$\therefore ABCD \text{ is a quadrilateral}$$

$$\therefore AF \cap CE = \{ D \}$$

$$\therefore m(\angle CDA) = 360 - [115 + 50 + 100] = 95^\circ$$

$$\therefore m(\angle CDA) = m(\angle FDE) = 95^\circ \text{ (V.O.A)}$$

$$\therefore DFER \text{ is a quadrilateral}$$

$$\therefore m(\angle R) = 360 - [95 + 80 + 120] = 65^\circ$$

- 4** A picture of a building is taken with a drawing scale 1 : 100, if the height of the building in the picture is 3 cm,
What is its real height?

3 meters



FOLLOW US

5 $0.\bar{6} - (-\frac{1}{6}) = 25\% + y$, Find the value of y

$\frac{7}{12}$

6 $\overleftrightarrow{AB} \cap \overleftrightarrow{CD} = \{M\}$, $m(\angle CMB) = 116^\circ$

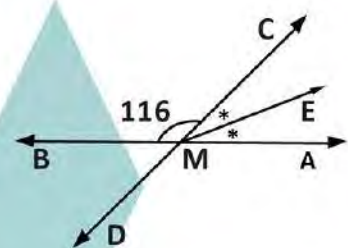
, $\overrightarrow{ME}$ bisects $\angle AMC$

Find: $m(\angle AMD)$, $m(\angle AMC)$, $m(\angle AME)$

116

64

32



7 In the opposite stem and leaf plot:

Write all the data

Find the mode, median, Q1, and Q3

Stems	Leaves
4	1 1 2
5	2 3
6	2 2 2
7	1 3 5

Key | 4 | 1 meas 41

Mode = 62

Median = 62

Q1 = 42

Q3 = 71



Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 In the parallelogram, each two opposite angles are
☐ a complementary ☒ b equal in measure ☐ c supplementary ☐ d reflex
- 2 The sum of $x + 2y - 3z$ and $-2y - x - 3z$ is
☒ a $-6z$ ☐ b zero ☐ c $6z$ ☐ d $2x - 4y + 6z$
- 3 The projection of the point $(-3, 5)$ on x-axis is
☐ a $(5, -3)$ ☐ b $(0, 5)$ ☒ c $(-3, 0)$ ☐ d $(3, -5)$
- 4 Drawing > 1 , then it expresses
☐ a reduction ☐ b minimization ☒ c enlargement ☐ d otherwise
- 5 In parallelogram XYZL, if $m(\angle X) = m(\angle Y)$, Then $m(\angle Y) = \dots\dots\dots^\circ$.
☐ a 120 ☐ b 45 ☒ c 90 ☐ d 180
- 6 If $a + b = 0$, where $a \neq b$, then $a \times b \dots\dots\dots$ zero.
☐ a $>$ ☒ b $<$ ☐ c $=$ ☐ d $\geq$
- 7 Three times a number is 27, then $\frac{1}{3}$ this number =
☐ a 9 ☐ b 12 ☐ c 27 ☒ d 3
- 8 If $X \subset Y$, Then $X \cap Y = \dots\dots\dots$.
☒ a X ☐ b Y ☐ c $X \cup Y$ ☐ d otherwise
- 9 If two straight lines intersect, then each two vertically angles are
☐ a supplementary ☐ b adjacent
☒ c equal in measure ☐ d complementary



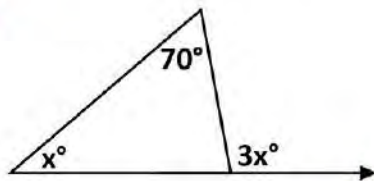
FOLLOW US

Q2: ANSWER THE FOLLOWING

(21 marks)

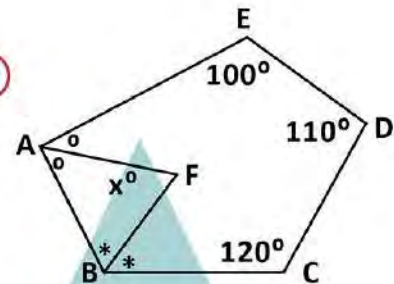
1 Find the value of x of the following:

a



35

b



75

2 Find the S.S of the following equations in N :

a $6x - 2x + 7 = 4$

$\emptyset$

b $4(x - 1) = 3(x + 1)$

{7}

3 ABC is a triangle in which the ratio between its angles is $5 : 7 : 8$, Find the measure of each angle.

First = 45

Second = 63

Third = 72

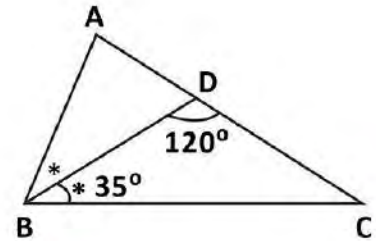
4 Three consecutive odd numbers whose sum is 213, what are there numbers?

69 , 71 , 73



FOLLOW US

- 5 In the opposite figure:
BD bisects $\angle ABC$, $m(\angle DBC) = 35^\circ$
 $m(\angle BDC) = 120^\circ$
Find: $m(\angle A)$



in $\triangle DCB$

$$\therefore m(\angle CDB) = 120^\circ, m(\angle DBC) = 35^\circ$$

in $\triangle ABC$

$$\therefore m(\angle C) = 180 - [120 + 35]$$

$$\therefore m(\angle A) = 180 - [35 + 70]$$

$$= 25^\circ$$

$$= 75^\circ$$

- 6 If the scale on the map is 1 : 600,000 and the distance between two points on the map is 4.5 cm, Find the real distance between the two points

27 km

- 7 Write the expression: $7m - 3n - 5m + 4n$ in its simplest form

$$2m + n$$

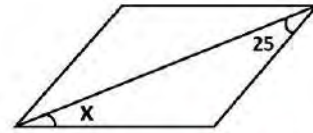
AHMED NASSR
MATH TEACHER



FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)



1 In opposite figure:

ABCD is a rhombus what is the value of x?

☒ a 25°

☐ b 50°

☐ c 100°

☐ d 130°

2 -3 exceeds 5 by amount of

☒ a -8

☐ b -2

☐ c 2

☐ d 8

3 The centre of the first set of the sets : 7-, 13-, 19-, 25- is

☐ a 6

☐ b 7

☒ c 10

☐ d 13

4 The zero angle complements angle.

☐ a zero

☐ b acute

☐ c obtuse

☒ d right

5 The solution set of the equation $4x = -12$ in N is

☐ a $\{-3\}$

☐ b $\{3\}$

☒ c $\emptyset$

☐ d $\{0\}$

6 The sum of measures of the interior angles of any quadrilateral equals

☐ a 270°

☒ b 360°

☐ c 180°

☐ d 90°

7 If $(3, m - 2)$ lies on the X-axis, what is the value of m?

☐ a -3

☐ b -2

☒ c 2

☐ d 3

8 If two ratio equal, then the product of extremes the product of means

☐ a less than

☒ b equals

☐ c greater than

☐ d otherwise

9 Which of the following equations is equivalent to the equation $x + 3 = 12$

☐ a $x - 3 = -12$

☐ b $x + (-3) = 12$

☒ c $x - (-3) = 12$

☐ d $x - (-3) = -12$



FOLLOW US

Q2: ANSWER THE FOLLOWING

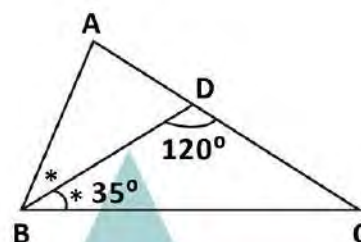
(21 marks)

1 In the opposite figure:

BD bisects $\angle ABC$, $m(\angle DBC) = 35^\circ$

$m(\angle BDC) = 120^\circ$

Find: $m(\angle A)$ in $\triangle DCB$



$$\therefore m(\angle CDB) = 120^\circ, m(\angle DBC) = 35^\circ \quad \text{in } \triangle ABC$$

$$\therefore m(\angle C) = 180 - [120 + 35] \quad \therefore m(\angle A) = 180 - [35 + 70]$$

$$= 25^\circ \quad = 75^\circ$$

2 A man passed away, leaving 150,000 L.E for his wife, two sons and one daughter, If his wife's share is $\frac{1}{8}$ of the total amount, and the remaining sum is to be distributed among his children, What is the share of each son and the daughter, If the share of the son is twice the share of the daughter.

Share of daughter = 26,250 L.E

Share of each son = 52,500 L.E

3 In the opposite table, the measure of circular sector of Handball sector is²¹⁶°.

Sports	Football	Handball	Tennis
frequency	140	360	100

4 In the opposite figure :

$BC \parallel DF \parallel XY$

$m(\angle D) = 144^\circ, m(\angle X) = 136^\circ$

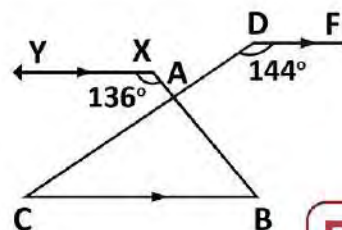
Find with proof: $m(\angle BAC)$

$\therefore DE \parallel CB$

$\therefore m(\angle C) = 180 - 144 = 36^\circ$ (interior) in $\triangle ABC$

$\therefore XY \parallel CB \quad \therefore m(\angle BAC) = 180^\circ - (44^\circ + 36^\circ)$

$\therefore m(\angle B) = 180 - 136 = 44^\circ$ (interior) $= 100^\circ$



FOLLOW US

- 5** Alaa purchased a mobile phone for 16,600 L.E and sold it for 17,762 L.E
Calculate the percent of Alaa's profit.

.....
..... 7 %
.....

- 6** If $X = \{ 5, 1, 7, 9 \}$, $Y = \{ 9, 3, 7, 2 \}$, $Z = \{ 7, 5 \}$, Find:

a $X \cap Y = \{ 7, 9 \}$

b $Y \cup Z = \{ 9, 3, 7, 2, 5 \}$

- 7** Find the S.S of the following equations in Q:

a $4(x + 1) = 2(x - 1)$

.....
..... { -3 }
.....

b $3x + 6 = 30 - 5x$

.....
..... { 3 }
.....

AHMED NASSR
MATH TEACHER



FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 The additive inverse of $(-3)^{\text{zero}}$ is
☐ a -1 ☐ b 1 ☐ c 3 ☐ d -3
- 2 The decrease of $-3ab$ than $2ab$ is
☐ a $-ab$ ☐ b ab ☐ c $-5ab$ ☐ d $5ab$
- 3 $-m + m = 0$ is called property
☐ a identity ☐ b inverse ☐ c distributive ☐ d closure
- 4 For a set of values: if $\bar{X} = 50$ and $\sum (f \cdot x) = 2,500$, what is the value of $\sum f$?
☐ a 125,000 ☐ b 2,550 ☐ c 50 ☐ d 2,450
- 5 If the ratio of two complementary angles is 7 : 11, then the measure of the smaller angle is
☐ a 145° ☐ b 70° ☐ c 90° ☐ d 35°
- 6 If $x < 0$ and $y > 0$, in which quadrant is the point $(x, -y)$ located?
☐ a 1st quadrant ☐ b 2nd quadrant ☐ c 3rd quadrant ☐ d 4th quadrant
- 7 If angle measure Y complements an angle of measure
☐ a $180^\circ - Y$ ☐ b $90^\circ - Y$ ☐ c $180^\circ + Y$ ☐ d $90^\circ + Y$
- 8 The sum of lengths of any two sides of a triangle the length of the third side
☐ a $>$ ☐ b $=$ ☐ c $<$ ☐ d $\geq$
- 9 If the original price of a mobile is 17,700 LE, then its sale price after apply a discount 12% is
☐ a 2,124 ☐ b 19,824
☐ c 15,576 ☐ d 15,756



FOLLOW US

Q2: ANSWER THE FOLLOWING

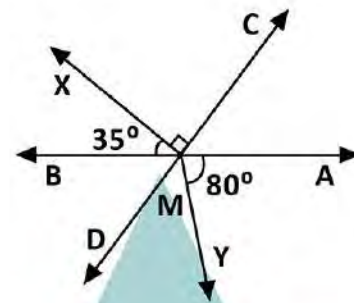
(21 marks)

1 In the opposite figure:

$$AB \cap CD = \{M\}, m(\angle CMX) = 90^\circ$$

$$m(\angle XMB) = 35^\circ, m(\angle AMY) = 80^\circ$$

Find: $m(\angle AMD)$, $m(\angle BMY)$

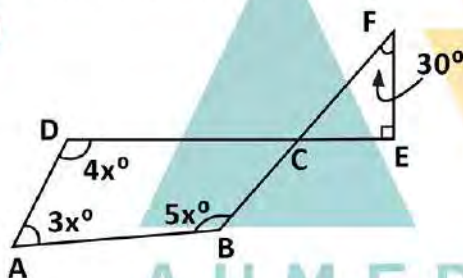


125

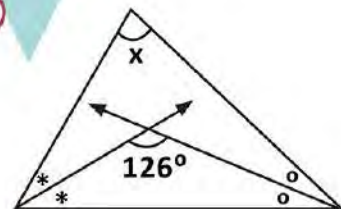
100

2 Find the value of x:

a



b



25

72

3 Find the S.S of the following equations in N:

a $-2(x + 1) = 3$

b $3(x - 2) = 5x - 10$

$\emptyset$

$\{2\}$



FOLLOW US

4 In the opposite figure:

AE bisects $\angle BAC$, $m(\angle BAE) = 24^\circ$

$m(\angle ACD) = 48^\circ$

Prove that: $AB \parallel CD$

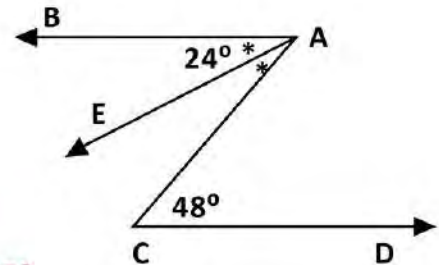
$\therefore$ AE bisects $\angle CAB$

$\therefore m(\angle A) = 24 + 24 = 48^\circ$

$\therefore m(\angle A) + m(\angle C) = 180^\circ$

(they are in interior position)

$\therefore AB \parallel CD$



5 Murad deposit 75,000 L.E in Al-Ahly bank, with annual interest 23%
Find the total amount which he gets at the end of one year.

92,250 L.E

6 If ABCD is a parallelogram where A(-1 , 1), B(4 , 2), and D(1 , 4)
Determine the coordinates of the following:

a The point of intersection of its diagonal
(2.5 , 3)

b The vertex C
(6 , 5)

7 The following data represents the number of shirts sold by clothes shop over 30 days.

11	35	14	31	27	32	45	7	22	22
36	22	45	9	38	16	46	42	29	15
15	32	14	48	38	34	22	7	18	33

Represent these data using a stem-and-leaf plot,

The find the median and the mode. Draw by yourself



FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 In the quadrilateral ABCD, If $m(\angle A) = 3 m(\angle B) = m(\angle C) = 120^\circ$, then $m(\angle D) = \dots\dots\dots$

☐ a 60° ☐ b 40° ☒ c 80° ☐ d 160°
- 2 The additive identity is $\dots\dots\dots$

☒ a 0 ☐ b 1 ☐ c -1 ☐ d 2
- 3 If $x + 3 = 5$, $x \in \mathbb{Z}^-$, Then the solution set is $\dots\dots\dots$

☐ a $\{-3\}$ ☐ b $\{5\}$ ☐ c $\{-5\}$ ☒ d $\emptyset$
- 4 If 0.8 , x , 4 and 5 are in a proportion, then $x = \dots\dots\dots$

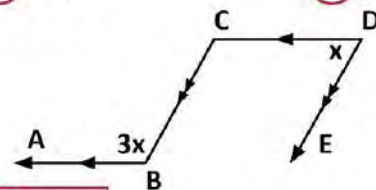
☐ a 0.1 ☐ b 2 ☒ c 1 ☐ d 0.2
- 5 If $\frac{|a|}{7} = 6$, then $a = \dots\dots\dots$

☐ a 24 ☐ b -42 ☐ c 42 ☒ d ± 42
- 6 If $m(\angle A) = 46^\circ$, then $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$

☐ a 44 ☐ b 134 ☒ c 314 ☐ d 360
- 7 In the triangle ABC, $\frac{AB + BC}{AC} \dots\dots\dots 1$

☒ a $>$ ☐ b $=$ ☐ c $=$ ☐ d $\geq$
- 8 If the arithmetic mean of the values 5, 4, 8, a, $a + 4$ is 21, then $a = \dots\dots\dots$

☐ a 29 ☒ b 42 ☐ c 105 ☐ d 21
- 9 In the opposite figure:
 $CD \parallel BA$, $DE \parallel CB$, then: $x = \dots\dots\dots$



- ☐ a 60°
☐ c 120°

- ☒ b 45°
☐ d 90°



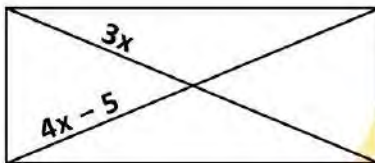
FOLLOW US

Q2: ANSWER THE FOLLOWING

(21 marks)

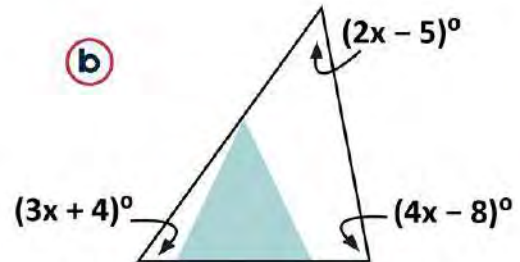
1 Find the value of x:

a



5

b



21

2 A shopkeeper bought some goods for 45,000 L.E. He spent 5,000 L.E to transport them. He sold these goods for 62,500 L.E, Find percentage of profit

25%

3 Write the following expressions in the simplest form:

a

$$-5x - 7y - 7x - 2y + 7y - 3x$$

b

$$2(3x - 4) - 3(x - 2)$$

$-15x - 2y$

$3x - 2$

4 By using multiplicative properties, Find the value of each of the following:

$$\frac{3}{4} \times 35 + 35 \times \frac{1}{2} - 35 \times \frac{1}{4}$$

35



FOLLOW US

- 5 A butterfly is of length 3.75 mm, Find the drawing scale if its photo length is 0.027 m

36 : 5

.....

.....

.....

- 6 In the triangle ABC, where the length of AB is 5 cm and the length of BC is 7 cm. What the smallest possible integer value for the length AC?

3 cm

.....

.....

.....

- 7 In the opposite stem and leaf plot:

Write all the data

Find the mode, median, Q1, and Q3

Stems	Leaves
2	1 1 2
3	2 3
4	2 2 2
5	1 3 5

Key | 2|3 meas 3.2

Mode = 4.2

Median = 4.2

Q1 = 2.2

Q3 = 5.1

.....

.....

.....



FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

1 The arithmetic mean of the values 3, 4, 8, a, a + 2 is 15, then a =

☒ a 29

☐ b 58

☐ c 75

☐ d 17

2 If the two vertically angles are complementary angles, the the measure of each angle is

☒ a 45°

☐ b 50°

☐ c 180°

☐ d 90°

3 The additive inverse of $x - 5$ is

☐ a $x - 5$

☐ b $-x - 5$

☒ c $-x + 5$

☐ d 5

4 If the ratio 7 : 13 is the same ratio $x : 52$, then $x = \dots\dots\dots$

☐ a 14

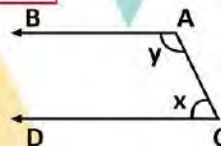
☐ b 21

☒ c 28

☐ d 35

5 In the opposite figure:

$\overrightarrow{AB} \parallel \overrightarrow{CD}$, $\frac{x}{y} = \frac{7}{11}$, what is the of x?



☐ a 60°

☒ b 70°

☐ c 100°

☐ d 110°

6 If $A = \{ 5, 7, 2 \}$, Then 57

☐ a $\in$

☒ b $\notin$

☐ c $\subset$

☐ d $\not\subset$

7 If $\angle X$ complements $\angle Y$, $m(\angle X) = 2m(\angle Y)$, then $m(\angle Y) = \dots\dots\dots$

☐ a 45°

☒ b 30°

☐ c 60°

☐ d 90°

8 $8 + (-10) > \dots\dots\dots$

☐ a 2

☐ b -2

☐ c 0

☒ d -4

9 From the following stem-and-leaf plot, the mode =

☐ a 4

☐ c 8

Stems	Leaves
2	1 1 3 5 6
3	3 4 4 5 6
4	7 8 8 8 9
5	0 1 3 5 7

☒ b 48

☐ d 34



FOLLOW US

Q2: ANSWER THE FOLLOWING

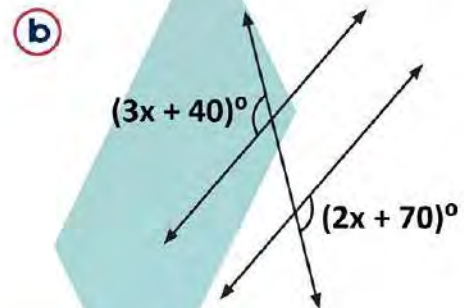
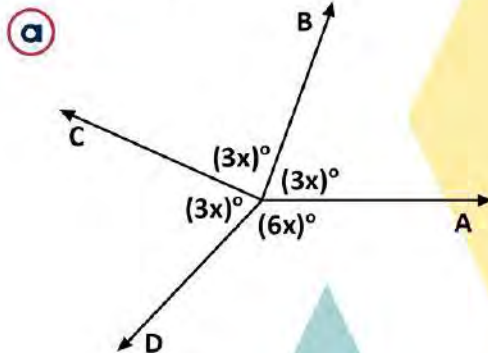
(21 marks)

1 If $X = \{ 1, 3, 7, 5 \}$, $Y = \{ 9, 4, 6, 2 \}$ Find:

a $X \cap Y = \emptyset$

b $Y \cup X = \{ 1, 3, 7, 5, 9, 4, 6, 2 \}$

2 Find value of x:



20

30

3 Divide 3,600 L.E among three persons such as that ratio between the share of first person to second person is 4 : 3 and the share of the third is half the share of first.

Find the share of each person.

First = 1,600 L.E

Second = 1,200 L.E

Third = 800 L.E

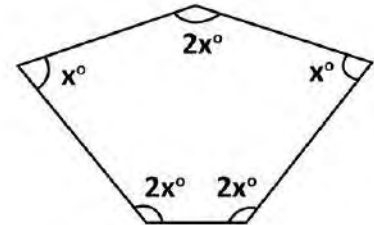
4 $2a^2 - 3ab - 5b^2$ decreases $4a^2 + 3b^2 + ab$ by

$2a^2 + 8b^2 + 4ab$



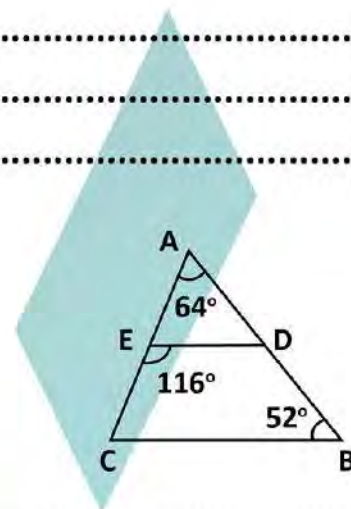
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- 5** In the opposite figure :
Find with giving reason
The value of X



$x = 67.5$

- 6** In the opposite figure:
In the ABC, $m(\angle A) = 64^\circ$, $m(\angle B) = 52^\circ$
, $m(\angle DEC) = 116^\circ$
, $E \in AC$, $D \in AB$
Prove that: $ED \parallel CB$



- 7** The following data represents the number of shirts sold by clothes shop over 30 days.

13	32	12	33	27	37	44	8	26	32
36	41	45	9	38	16	46	48	29	15
13	32	14	18	28	34	25	7	18	33

Represent these data using a stem-and-leaf plot,
The find the median and the mode.

Stems	Leaves
0	7 8 9
1	2 3 3 4 5 6 8 8
2	5 6 7 8 9
3	2 2 2 3 3 4 6 7 8
4	1 4 5 6 8

Mode = 32

Median = 28.5



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Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 The length of the projection of a line segment on a straight line the length of the main line segment.
☐ a $>$ ☐ b $=$ ☐ c $<$ ☒ d $\leq$
- 2 The numbers 5, 4, can be lengths of sides of a triangle.
☒ a 8 ☐ b 9 ☐ c 10 ☐ d 12
- 3 "The sum of three consecutive odd numbers is 87" as equation is
☐ a $3x = 87$ ☐ b $3x + 3 = 87$ ☐ c $3x + 4 = 87$ ☒ d $3x + 6 = 87$
- 4 If $\angle A$ complements $\angle B$ and $m(\angle A) = \frac{2}{3} m(\angle B)$, then $m(\angle B) = \dots\dots\dots^\circ$
☐ a 18 ☐ b 36 ☒ c 54 ☐ d 90
- 5 If $x < 0$ and $y > 0$, in which quadrant is the point $(-x, -y)$ located?
☐ a 1st quadrant ☐ b 2nd quadrant ☐ c 3rd quadrant ☒ d 4th quadrant
- 6 $2x^2 + 4x^2 = \dots\dots\dots$
☐ a $6x^4$ ☒ b $6x^2$ ☐ c $8x^2$ ☐ d $8y^4$
- 7 Which of the following drawing scales represent enlargement?
☐ a 1 : 20 ☐ b 5 : 23 ☒ c 7 : 3 ☐ d 4 : 35
- 8 If $\frac{x+4}{6} = \frac{7}{14}$, The $x = \dots\dots\dots$
☐ a -7 ☐ b 7 ☒ c -1 ☐ d 1
- 9 If two adjacent sides of a parrallelogram are equal in length, then becomes
☐ a a square ☒ b a rhombus
☐ c a rectangle ☐ d a trapezium



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Q2: ANSWER THE FOLLOWING (21 marks)

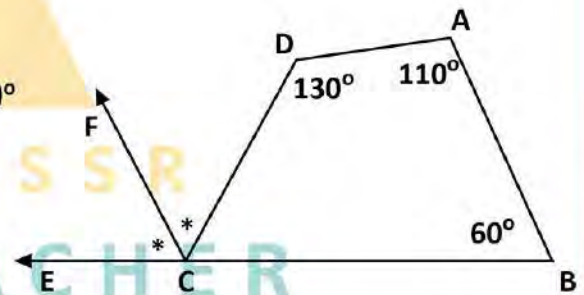
- 1 A TV price after deduction rate of 16% is 12,600 L.E,
What is the TV price before the deduction?

15,000 L.E

- 2 In triangle XYZ, where the length of XY is 8 cm, and the length of YZ is 5 cm
What is the smallest integer that can represent the length of the third side?

4 cm

- 3 In the opposite figure:
 $m(\angle A) = 110^\circ$, $m(\angle D) = 130^\circ$, $m(\angle B) = 60^\circ$
, $E \in BC$, CF bisects $\angle DCE$



120

- 4 Find the S.S in Q of the following equation:

$$\frac{5}{4 + 4x} = \frac{3}{1 - 2x}$$

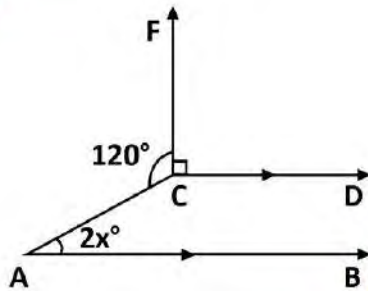
S.S = $\left\{ \frac{-7}{22} \right\}$



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5 Find the value of x:

a



15

50

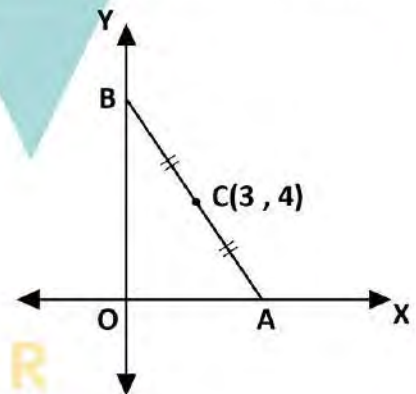
6 In the opposite figure:

Point C is the midpoint of AB

Find the coordinates of each of A and B

A(6 , 0)

B(0 , 8)



7 In a survey for Prep 1 students about their favorite color, Represent the following table by Pie chart.

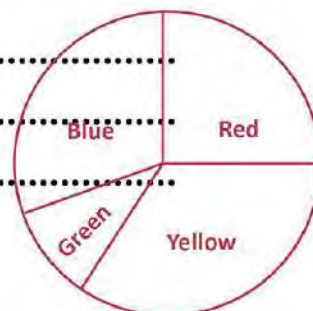
Colors	Red	Blue	Green	Yellow
Percentage	25%	30%	10%	35%

$$\text{Red} = \frac{25}{100} \times 360 = 90^\circ$$

$$\text{Blue} = \frac{30}{100} \times 360 = 108^\circ$$

$$\text{Green} = \frac{10}{100} \times 360 = 36^\circ$$

$$\text{Yellow} = \frac{35}{100} \times 360 = 126^\circ$$



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Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 $7x + 5y + z$ increases $2x - y + z$ by
☐ a $5x + 4y + 2z$ ☒ b $5x + 6y$ ☐ c $9x + 4y$ ☐ d $9x - 6y - 2z$
- 2 If the mean of the following set of data $x + 1$, 8 , $2x + 4$, $x - 5$, $x + 2$ is 7
 Then the value of $x =$
☐ a 8 ☒ b 5 ☐ c 3 ☐ d 2
- 3 ABCD is a parallelogram in which: $m(\angle A) + m(\angle C) = 140^\circ$, then $m(\angle B) =$
☐ a 40° ☐ b 70° ☒ c 110° ☐ d 220°
- 4 The first proportional of 12 , 3 and 4 is
☐ a 15 ☒ b 9 ☐ c 7 ☐ d 3
- 5 The multiplicative identity is
☐ a 0 ☒ b 1 ☐ c -1 ☐ d 2
- 6 The two straight line perpendicular to a third straight line in the same plane are
☐ a perpendicular ☐ b intersecting ☒ c parallel ☐ d coincident
- 7 $k + k + k =$
☐ a k^3 ☒ b $3k$ ☐ c $3k^3$ ☐ d $k + 3$
- 8 The result of subtracted $\frac{-5}{7}$ from $\frac{3}{14}$ equals
☐ a $\frac{3}{14}$ ☒ b $\frac{13}{14}$ ☐ c $\frac{-1}{2}$ ☐ d $\frac{1}{2}$
- 9 A sum of money 420 L.E was distributed between Murad and Farida in the ratio $2 : 5$, then the share of Farida is L.E
☐ a 120 ☒ b 300
☐ c 280 ☐ d 720



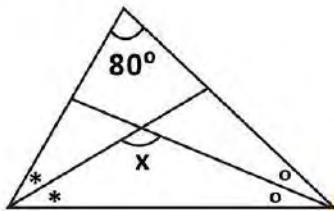
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Q2: ANSWER THE FOLLOWING

(21 marks)

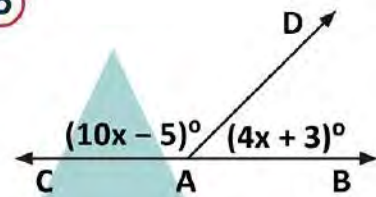
1 Find the value of x:

a



130

b



13

2 If the point $(a - 2, 3a + 9)$ lies on x-axis, determine the quarter in which the point $(a, 6 - a)$ is located

Second quadrant

3 The difference between two natural numbers is 5 and their sum is 21
What are the two numbers ?

the two numbers 13 and 8

4 When does a quadrilateral become a parallelogram? List 3 cases

The diagonals bisect each other

Each two opposite sides are parallel

Each two consecutive angles are supplementary



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- 5** A father distributed 225 L.E among his three sons. The share of the first was third of the sum and the ratio between the share of second and the share of third is 2 : 3,
Find the share of each of them.

First = 75 L.E

Second = 60 L.E

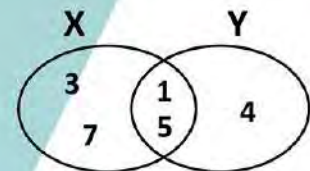
Third = 90 L.E

- 6** In the opposite figure:

$$X = \{3, 7, 1, 5\} \quad Y = \{1, 5, 4\}$$

$$X \cap Y = \{1, 5\}$$

$$X \cup Y = \{1, 5, 3, 7, 4\}$$



- 7** The opposite table represents hours of work of 100 workers.

No. of hours (x)	4	6	7	8	9	10	13
No. of workers (f)	15	13	30	m	10	8	2

Find the value of m, then find mean of the hours of work

$$m = 100 - 78 = 22$$

$$\bar{X} = \frac{720}{100} = 7.2$$

x	f	f.x
4	15	60
6	13	78
7	30	210
8	22	176
9	10	90
10	8	80
13	2	26
Sum	100	720



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Q1: CHOOSE THE CORRECT ANSWER

(9 marks)

- 1 The lengths of two side of an isosceles triangle are 3 cm and 7 cm,
Then the third side could be cm
 (a) 3 (b) 4 (c) 5 (d) 7
- 2 If $5x + 8x + 2x + 4x = 114$, then $5x + 3 = \dots\dots\dots$.
 (a) 33 (b) 35 (c) 47 (d) $8x$
- 3 If $x \div y = 1$, then $x = \dots\dots\dots$.
 (a) 1 (b) x (c) y (d) 0
- 4 If $a : b : c = 4 : 5 : 3$, and $b - c = 9$, Then the value of $a = \dots\dots\dots$.
 (a) 9 (b) 18 (c) 15 (d) 21
- 5 If $\frac{x}{y} = \frac{5}{7}$, then $\frac{7x}{5y} = \dots\dots\dots$.
 (a) $\frac{5}{7}$ (b) 1 (c) $\frac{7}{5}$ (d) $\frac{1}{5}$
- 6 For a set of values: if $\bar{X} = 20$ and $\sum (f \cdot x) = 2,500$, what is the value of $\sum f$?
 (a) 50,000 (b) 5,000 (c) 1,250 (d) 125
- 7 If the real length of an insect is 0.7 mm. and its length after magnification is 6.3 cm then the ratio of magnification is
 (a) 9 : 1 (b) 90 : 1 (c) 900 : 1 (d) 9,000 : 1
- 8 If a straight line cuts two parallel straight lines, then each two interior angles are
 (a) complementary (b) perpendicular (c) supplementary (d) equal in measure
- 9 The sum of supplementary angles equals the sum of the measures of angles.
 (a) 2 right (b) 4 right
 (c) 3 right (d) 5 right



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Q2: ANSWER THE FOLLOWING

(21 marks)

- 1 Murad earns a monthly salary of 7,000 L.E, and the employees' salaries were increased by the rate 15%. What is Murad's salary after the increase and what the amount of the increase?

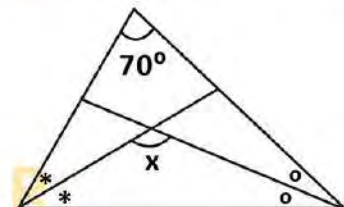
The salary after increase = 8,050 L.E

Amount of an increase = 1,050 L.E

- 2 What is the increase of the expression: $4k - 3n + 2m$ than $5k + m - 2n$

$-k - n + m$

- 3 In the opposite figure:
Find the value of x



AHMED NASSR
MATH TEACHER

$x = 125$

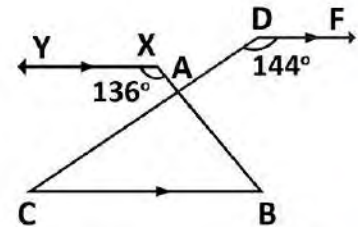
- 4 Three consecutive numbers whose sum is 213, what are there numbers?

70, 71, 72



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- 5** In the opposite figure :
 $BC \parallel DF \parallel XY$
 $m(\angle D) = 144^\circ$, $m(\angle X) = 136^\circ$
 Find with proof: $m(\angle BAC)$
 $\therefore DE \parallel CB$



$$\therefore m(\angle C) = 180 - 144 = 36^\circ \text{ (interior) in } \triangle ABC$$

$$\therefore XY \parallel CB \quad \therefore m(\angle BAC) = 180^\circ - (44^\circ + 36^\circ)$$

$$\therefore m(\angle B) = 180 - 136 = 44^\circ \text{ (interior)} \quad = 100^\circ$$

- 6** ABCD is a quadrilateral where, $A(-3, -2)$, $B(2, -2)$, $C(4, 2)$ and $D(-2, 2)$
 Is it a parallelogram or not?

$$\text{The midpoint of AC} = \left(\frac{-3+4}{2}, \frac{-2+2}{2} \right) = \left(\frac{1}{2}, 0 \right) \quad \therefore \text{The midpoint of AC is not equals the midpoint of BD}$$

$$\text{The midpoint of BD} = \left(\frac{2+(-2)}{2}, \frac{-2+2}{2} \right) = (0, 0)$$

$$\therefore \text{The diagonals are not bisect each other}$$

ABCD is not a parallelogram

- 7** If the colours preferred by 55 students in fourth grade are given in the opposite table

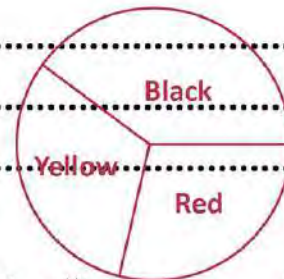
Use a pie chart to represent this data

Colours	Red	Yellow	Black
frequency	18	24	18

$$\text{Red} = \frac{18}{60} \times 360 = 108^\circ$$

$$\text{Black} = \frac{18}{60} \times 360 = 108^\circ$$

$$\text{Yellow} = \frac{24}{60} \times 360 = 144^\circ$$



اللهم اجعل هذا العمل خالصا لوجهك الكريم
 واكتب له القبول والنفع يا كريم يا وهَّاب.



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حمل الآن

مجاناً وحصرياً

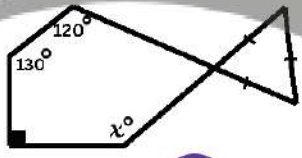
امتحانات رقم (5)

الترم الاول



Q1: Choose the correct answer :-

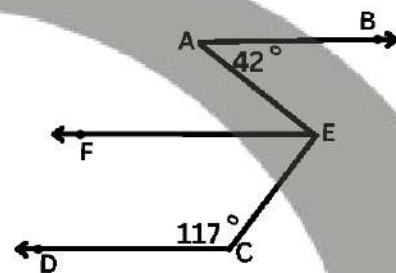
30

- 1 The result of subtracting : $7y - 6$ from $3y + 7$
 - (a) $10y + 1$
 - (b) $-4y - 1$
 - (c) $4y + 1$
 - (d) $-4y + 13$
- 2 The ratio between the side lengths in a triangle is $3 : 4 : 5$. If its perimeter is 36 cm , then the length of the longest side is
 - (a) 9 cm
 - (b) 12 cm
 - (c) 15 cm
 - (d) 24 cm
- 3 In the opposite figure:
The value of $\chi = \dots\dots\dots^\circ$

 - (a) 110°
 - (b) 120°
 - (c) 130°
 - (d) 140°
- 4 If $\sum f = 10$ and $\sum (f \cdot \chi) = 40$, then the value of $\bar{\chi} = \dots\dots\dots$
 - (a) 4
 - (b) 50
 - (c) 30
 - (d) 400
- 5 The measure of the interior angle of a regular polygon with 10 sides is
 - (a) 108°
 - (b) 120°
 - (c) 135°
 - (d) 144°
- 6 If the origin point is the midpoint of $\overline{AB}$ where $A(5, -2)$ then B is
 - (a) $(2, 5)$
 - (b) $(5, -2)$
 - (c) $(-2, -5)$
 - (d) $(-5, 2)$
- 7 Each two consecutive angles in a parallelogram are
 - (a) Perpendicular
 - (b) Complementary
 - (c) Supplementary
 - (d) Equal in measure
- 8 The sum of the measure of the interior angles = the measure of
 - (a) a right angle
 - (b) a straight angle
 - (c) an acute angle
 - (d) a reflex angle
- 9 $\not\subset \dots\dots\dots \{3, 4\}$
 - (a) $\in$
 - (b) $\nsubseteq$
 - (c) $\notin$
 - (d) $\subset$

Q3: Answer the following :-

- 1 A man's age is now is three times his son's age , and after two years , the sum of their ages will be 52 years. What are their ages now?

- 2 $\overrightarrow{AB} \parallel \overrightarrow{CD}$, $\overrightarrow{EF} \parallel \overrightarrow{CD}$
 $m(\angle A) = 42^\circ$, $m(\angle C) = 117^\circ$
 Find $m(\angle AEC)$



- 3 Use the distributive property to find the result:

$$32 \times 18 - 32 \times 34 + 32 \times 17$$

- 4 If the point $(a - 2, 3a + 9)$ lies on the x -axis ,determine the quadrant in which the point $(a, 6 - a)$ is located

- 5 If the number of people who went to a restaurant over 11 days is as follows:

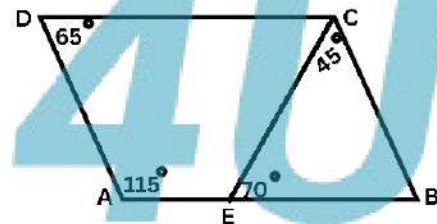
104	131	120	115	109	124
128	118	116	120	125	

Stem	leaves
.....	
.....	
.....	
.....	

- Complete the adjacent plot.
- Find: the mode , median , and range

Key: 13 | 1 means 131

- 6 In the opposite figure:
Prove that : ABCD is a parallelogram



- 7 An online store receives a commission rate of 1.5% for marketing seller products. If the store sold products for 42,000,000 LE within a week ,calculate the total commission amount

Q1: Choose the correct answer :-

30

- 1 A hall can accommodate 160 people. If 75 % of its seats are filled ,the number of people in the hall is
 (a) 40 (b) 200 (c) 120 (d) 100
- 2 If $m(\angle A) = m(\angle B)$ and $\angle A$ supplements $\angle B$, then $m(\angle B) = \dots\dots^\circ$
 (a) 30° (b) 45° (c) 60° (d) 90°
- 3 If the mean of 6 consecutive even numbers is 35 , what is the smallest of these number?
 (a) 36 (b) 34 (c) 32 (d) 30
- 4 $\mathbb{Z} \cup \mathbb{N} = \dots\dots$
 (a) $\emptyset$ (b) $\mathbb{Z}$ (c) $\mathbb{N}$ (d) $\mathbb{Q}$
- 5 The solution set in $\mathbb{Z}$ for the equation: $7 - 3x = x - 3$ is
 (a) $\emptyset$ (b) $\{2\}$ (c) $\{1\}$ (d) $\{3\}$
- 6 If the point $(3, k - 2)$ lies on the X -axes ,then the value of $K = \dots\dots^\circ$
 (a) -3 (b) -2 (c) 2 (d) 3
- 7 If L_1, L_2 and L_3 are three lines in the same plane , $L_3 \parallel L_1$ and $L_3 \parallel L_2$,then
 (a) $L_2 \perp L_1$ (b) $L_3 \perp L_1$ (c) $L_2 \parallel L_1$ (d) $L_3 \perp L_2$
- 8 If $x < 0$ and $y > 0$, in which quadrant is the point $(x, -y)$ located?
 (a) 1st (b) 2nd (c) 3rd (d) 4th
- 9 If ABCD is a parallelogram , $AC = BD$, $\overline{AC} \perp \overline{BD}$,then ABCD is
 (a) a trapezium (b) a rhombus (c) a rectangle (d) a square

Q3: Answer the following :-

- 1 Nagwa saved $(3x + 5y - 7)$ LE, and she bought a gift for her sister for $(2x + y + 3)$ LE. How much money remains with Nagwa?

.....

.....

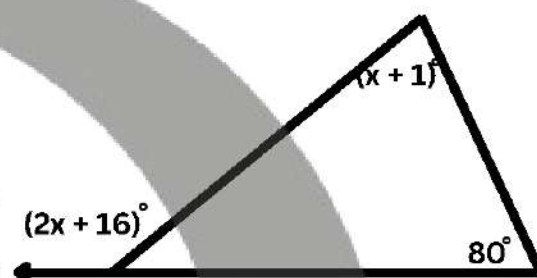
.....

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- 2 In the opposite figure :
Find the value of x

.....

.....



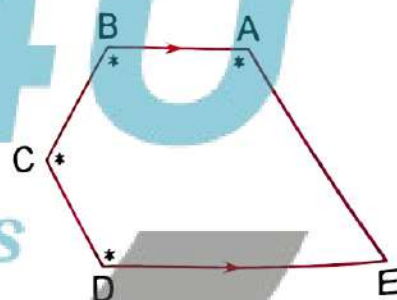
- 3 In the opposite figure:
 $\overline{AB} \parallel \overline{ED}$
 $m(\angle A) = m(\angle B) = m(\angle C) = m(\angle D)$
Find with proof: $m(\angle E)$

.....

.....

.....

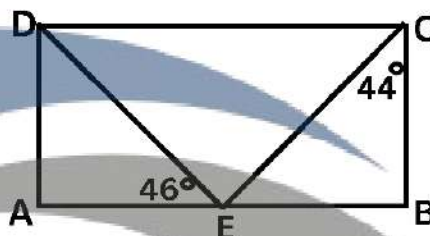
.....



- 4 If the favorite sport of 160 students is shown in the opposite table. Represent this data using a pie chart

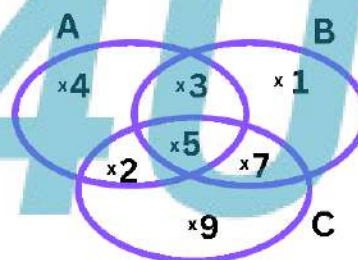
Sports	Foot ball	swimming	Volley ball	Karate
Frequency	96	16	16	32

- 5 ABCD is a rectangle , $E \in \overline{AB}$
 $m(\angle ECB) = 44^\circ$, $m(\angle AED) = 46^\circ$
 Find $m(\angle CED)$



- 6 From the opposite Venn diagram ,find:

- 1) $A \cap B$ 2) $A \cup C$
 3) $A \cap B \cap C$ 4) $A \cap (B \cup C)$

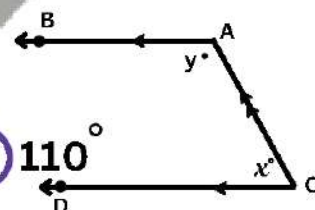


- 7 Omar subscribed to a home internet service for 520 LE per month ,along with a 14 % tax rate applied to the service fee. What is the tax value and the total monthly subscription cost?

Q1: Choose the correct answer :-

30

- 1 The result of subtracting $\frac{3}{5}$ from $\frac{7}{10}$ =
 (a) $\frac{4}{5}$ (b) $\frac{1}{5}$ (c) $\frac{1}{10}$ (d) $-\frac{4}{5}$
- 2 The triangle consists of two angles at least.
 (a) acute (b) obtuse (c) right (d) reflex
- 3 If C (- 3 , y) is the midpoint of $\overline{AB}$ where A ($\mathcal{X}$, - 6) and B (1 , - 8) then $\mathcal{X} + y$ =
 (a) -11 (b) 11 (c) -18 (d) -14
- 4 All of the following describe the center of a data except
 (a) mode (b) mean (c) range (d) median
- 5 If $A = \{ 2 , 5 , 8 \}$, then which of the following is correct ?
 (a) $\{ 2 \} \in A$ (b) $\{ 3 \} \notin A$ (c) $\{ 5 , 8 \} \not\subset A$ (d) $\{ 2 \} \subset A$
- 6 If the mean of 6 consecutive even numbers is 35 , what is the smallest of these number?
 (a) 36 (b) 34 (c) 32 (d) 30
- 7 In the opposite figure:
 $\overrightarrow{AB} \parallel \overrightarrow{CD}$, $\frac{x}{y} = \frac{7}{11}$, then the value of x is°
 (a) 60° (b) 70° (c) 100° (d) 110°
- 8 If ABCD is a parallelogram in which $m(\angle A) + m(\angle C) = 140^\circ$, then $m(\angle B) =$ °
 (a) 70° (b) 40° (c) 110° (d) 220°
- 9 The lengths of two sides of an isosceles triangle are 3 cm and 7 cm. then the length of the third side is cm
 (a) 3 cm (b) 4 cm (c) 5 cm (d) 7 cm



Q3: Answer the following :-

- 1 Mustafa drew a picture of his brother Ahmed. If the scale drawings is 1 : 4 and Ahmed's height is 160cm ,what is Ahmed's height in the picture.

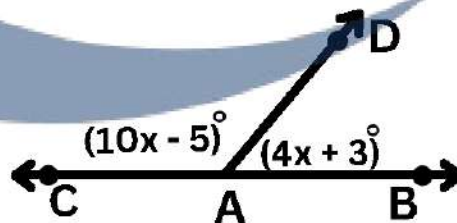
- 2 Three persons shared 7,200 LE. in the ratio of 3 : 4 : 5 . Calculate the share of each one.

- 3 Add the two expression: $6a + 7b - 2$ and $2b + 5a$, then find the numerical value of the result when $a = 2$, $b = 1$

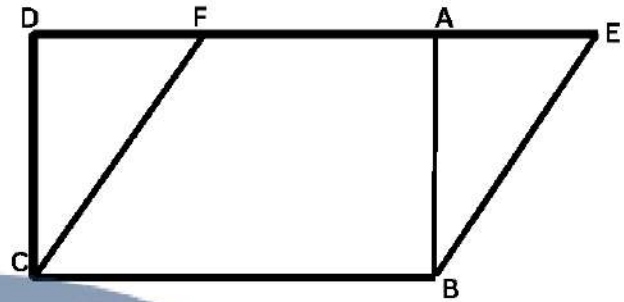
- 4 In the opposite figure:

If $A \in \overrightarrow{BC}$

Find the value of x



- 5** In the opposite figure:
 ABCD is a rectangle , EBCF is a
 parallelogram.
 Prove that : $AE = DF$



- 6** Determine the coordinates of the midpoint of $\overline{AB}$ where:
 $A(2, -2)$, $B(-6, 8)$

- 7** The opposite stem-and-leaf plot represents the height of trees ,
 in meters in the school garden

- Find the model height
- Find: the median , first quartile , and third quartile
- Find the range
- Draw the box plot

Stem	leaves
1	9
2	2 8
3	1 4 4 9
4	5 8
5	1 2

Key : 1 | 9 means 1.9 meters

Q1: Choose the correct answer :-

- | | | | | | |
|----------|---|----------|---|----------|---|
| 1 | d | 2 | c | 3 | d |
| 4 | a | 5 | d | 6 | d |
| 7 | c | 8 | b | 9 | d |

Q2: Answer the questions :-

- 1** Let the age of the son be x years and the age of the father be $3x$ years

$$x + 2 + 3x + 2 = 52$$

$$4x + 4 = 52$$

$$4x = 52 - 4 = 48$$

$$x = 48 \div 4$$

$$x = 12$$

then the age of the son is 12 years

and the age of the father is 36 years

- 2** $\overrightarrow{AB} \parallel \overrightarrow{EF}$, $\overleftrightarrow{AE}$ is a transversal.

$$m(\angle A) = m(\angle AEF) = 42^\circ \text{ (alternate angles)}$$

$\overrightarrow{EF} \parallel \overrightarrow{CD}$, $\overleftrightarrow{EC}$ is a transversal.

$$m(\angle EFC) + m(\angle C) = 180^\circ$$

(interior angles and on one side of the transversal)

$$m(\angle FEC) = 180 - 117 = 63^\circ$$

$$m(\angle AEC) = 42 + 63 = 105^\circ$$

- 3** $32 \times 18 - 32 \times 34 + 32 \times 17$
 $= 32(18 - 34 + 17) = 32 \times 1 = 32$

- 4 The point lies on X-axis
 The y-coordinate = 0
 $3a + 9 = 0$ $3a = -9$ $a = -3$
 by substituting with the value of a
 The point is $(-3, 9)$
 The point lies in the second quadrant

5 1

Stem	leaves
10	4 9
11	5 6 8
12	0 0 4 5 8
13	1

Key : 11 | 5 means 115

- 2 The mode = 120 , the median = 120 , the range = $131 - 104 = 27$

- 6 In $\triangle AEB$:
 $m(\angle BAE) = 45^\circ$, $m(\angle AEB) = 70^\circ$
 $m(\angle B) = 180 - (45 + 70) = 65^\circ$
 $m(\angle C) + m(\angle B) = 65 + 115 = 180^\circ$
 (they are interior angles in the same side of the transversal)
 $\overline{AB} \parallel \overline{DC}$ (1)
 $m(\angle D) + m(\angle C) = 65 + 115 = 180^\circ$
 (they are interior angles in the same side of the transversal)
 $\overline{AD} \parallel \overline{BC}$ (2)
 From 1 and 2 :
 ABCD is a parallelogram

- 7 The commission = $\frac{1.5}{100} \times 42,000,000 = 630,000$ LE.

Q1: Choose the correct answer :-

- | | | | | | |
|----------|---|----------|---|----------|---|
| 1 | c | 2 | d | 3 | d |
| 4 | b | 5 | a | 6 | c |
| 7 | c | 8 | c | 9 | d |

Q2: Answer the questions :-

1 The rest of Nagwa's saving = $(3x + 5y - 7) - (2x + y + 3)$
 $= 3x + 5y - 7 - 2x - y - 3$
 $= (x + 4y - 10)$ LE.

2 $2x + 16^\circ = x + 1^\circ + 80^\circ$
 $2x + 16^\circ = x + 81^\circ$
 $2x - x = 81^\circ - 16^\circ$
 $x = 65^\circ$

3 let: $m(\angle A) = m(\angle B) = m(\angle C) = m(\angle D) = X$
 $\overline{AB} \parallel \overline{ED}$, $\overleftrightarrow{AE}$ is a transversal
 $m(\angle A) + m(\angle E) = 180^\circ$
 (interior angles in the same side of the transversal)

ABCDE is a pentagon

$$[m(\angle A) + m(\angle E)] + m(\angle B) + m(\angle C) + m(\angle D) = 540^\circ$$

$$180 + X + X + X = 540^\circ$$

$$180 + 3X = 540^\circ$$

$$3X = 540 - 180 = 360^\circ$$

$$X = 360 \div 3 = 120^\circ$$

$$m(\angle A) = 120^\circ$$

$$m(\angle E) = 180 - 120 = 60^\circ$$

- 4 The number of students = 160 students

$$\text{The measure of the central angle of football} = \frac{96}{160} \times 360 = 216^\circ$$

$$\text{The measure of the central angle of swimming} = \frac{16}{160} \times 360 = 36^\circ$$

$$\text{The measure of the central angle of volleyball} = \frac{16}{160} \times 360 = 36^\circ$$

$$\text{The measure of the central angle of karate} = \frac{32}{160} \times 360 = 72^\circ$$

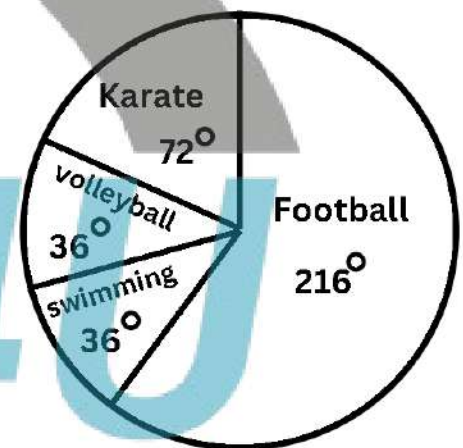
- 5 ABCD is a rectangle $m(\angle B) = 90^\circ$

In $\triangle BCE$:

$$m(\angle CEB) = 180 - (44 + 90) = 46^\circ$$

$E \in \overline{AB}$

$$m(\angle CED) = 180 - (46 + 46) = 88^\circ$$



- 6
- $A \cap B = \{3, 5\}$
 - $A \cup C = \{2, 3, 4, 5, 9, 7\}$
 - $A \cap B \cap C = \{5\}$
 - $A \cap (B \cup C) = \{2, 3, 4, 5\} \cap \{1, 2, 3, 5, 7, 9\} = \{2, 3, 5\}$

- 7 The tax = $\frac{14}{100} \times 520 = 72.8$ LE.

What Omar pays monthly = $520 + 72.8 = 592.8$ LE.

Q1: Choose the correct answer :-

- | | | | | | |
|----------|---|----------|---|----------|---|
| 1 | c | 2 | a | 3 | d |
| 4 | c | 5 | d | 6 | d |
| 7 | b | 8 | c | 9 | d |

Q2: Answer the questions :-

1 Scale drawing = $\frac{\text{height in picture}}{\text{real height}}$ $\frac{1}{4} = \frac{\text{height in picture}}{160}$

Height in the picture = $\frac{160 \times 1}{4} = 40 \text{ cm.}$

2 First : Second : Third : Sum
 3 : 4 : 5 : 12
 ? : ? : ? : 7,200

The share of the first person = $\frac{3 \times 7,200}{12} = 1800 \text{ LE}$

The share of the first person = $\frac{4 \times 7,200}{12} = 2400 \text{ LE}$

The share of the first person = $\frac{5 \times 7,200}{12} = 3000 \text{ LE}$

3 The expression : $11a + 9b - 2$

The numerical value = $11 \times 2 + 9 \times 1 - 2 = 22 + 9 - 2 = 29$

4 $(10x - 5) + (4x + 3) = 180^\circ$

$(14x - 2) = 180^\circ$

$14x = 180 + 2 = 182^\circ$

$x = 182 \div 14 = 13^\circ$

5 ABCD is a rectangle

BC = AD (1)

EBCF is a parallelogram

BC = FE (2)

From 1 and 2: AD = FE

By subtracting AF from both sides

DF = AE

6 $\left(\frac{2 + (-6)}{2}, \frac{-2 + 8}{2} \right) = (-2, 3)$

7 1 3.4 meters

2 The median = 3.4 meters, Q1 = 2.8 meters, Q3 = 4.8 meters

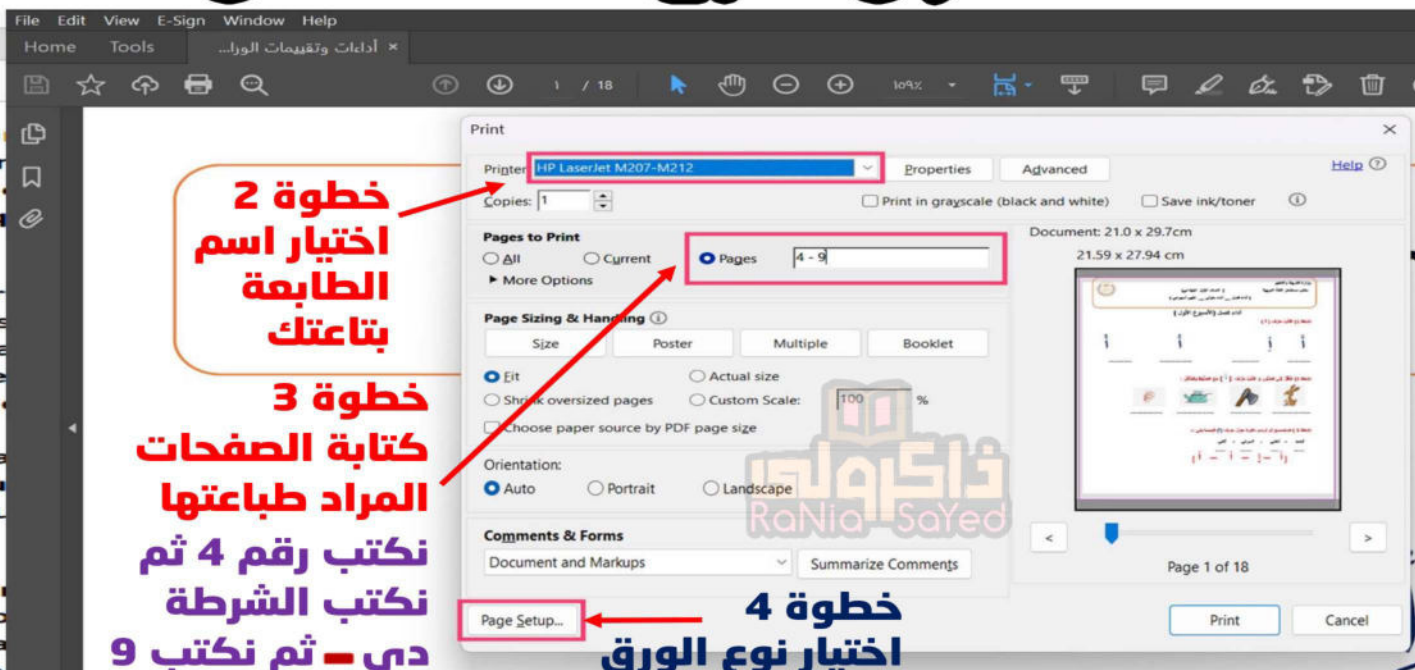
3 The range = $5.2 - 1.9 = 3.3$ meters

4 The box plot

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



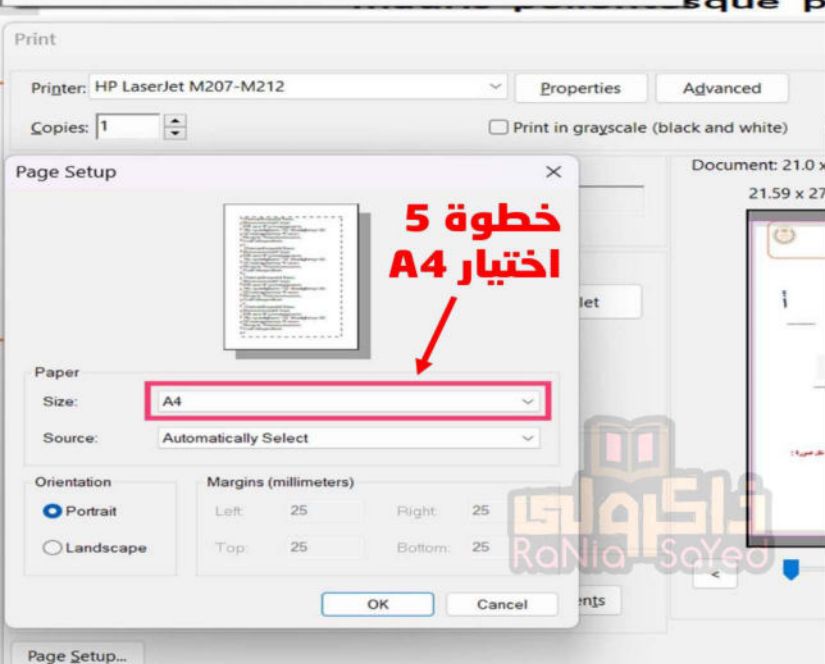
خطوة 1



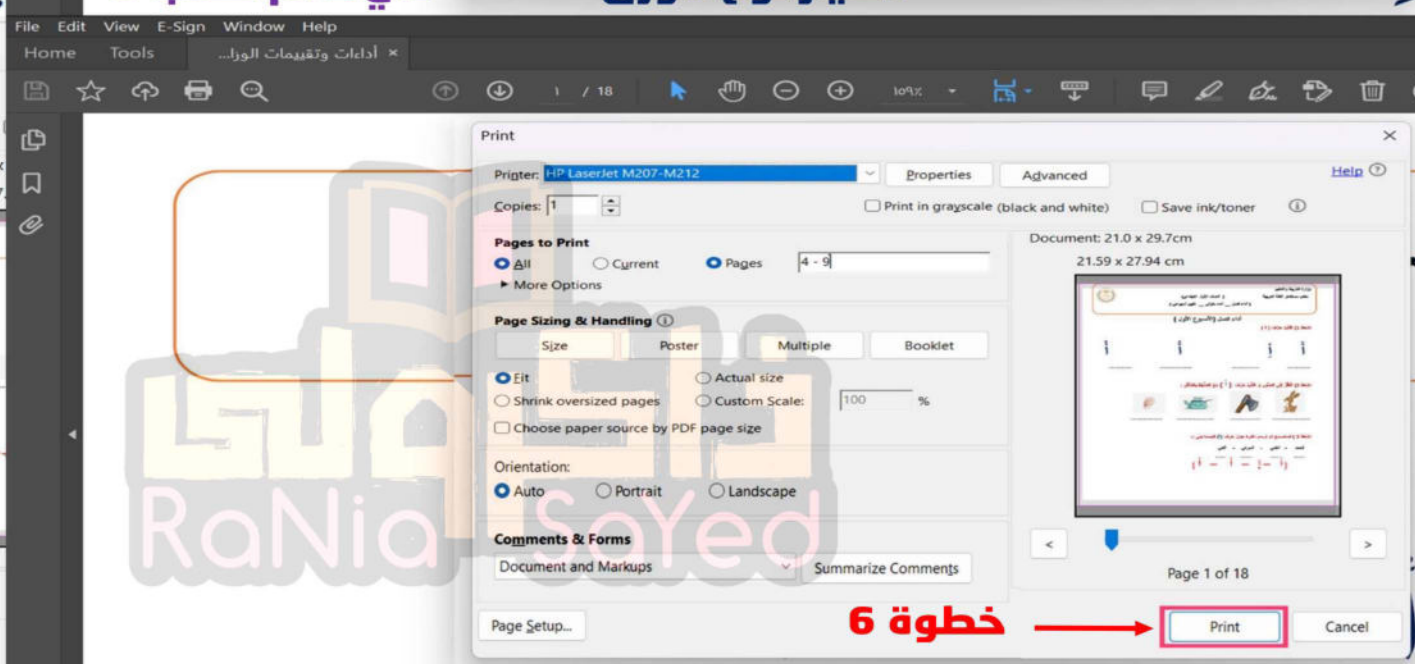
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6